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More and more, in an aging population, is there a place for the replacement of diseased segments of arteries. The synthetic fabric prostheses seem to be equal to homografts in successful re-establishment of circulation.

Experience With Arterial Replacement\*

H. WILLIAM SCOTT, JR., M.D., JAMES A. KIRTLEY, M.D.,  
ROBERT I. CARLSON, M.D., and JOHN H. FOSTER, M.D., Nashville, Tenn.

Early experience with replacement of diseased vascular segments with preserved homologous arteries was reported in this journal in 1955.<sup>2</sup> That report included the first 27 patients in whom arterial homografts were implanted at the Vanderbilt University Medical Center. Since that time we have continued to use freeze-dry homografts to restore arterial continuity following resection of diseased vascular segments. In addition, the synthetic fabric prostheses, such as Dacron, Nylon, and Teflon, have also been used as arterial substitutes. Since early in 1954, arterial grafting has been performed in a total of 183 patients. The operations have been performed by members of the attending and resident staffs of Vanderbilt and Thayer V. A. Hospitals. A freeze-dried homologous homograft was employed in 149 cases, and in 34 instances a synthetic prosthesis was used. These patients provide the basis of this report.

Results

1. *Homologous Homograft Series.* The method of processing and preserving the freeze-dry arterial homograft has been described in an earlier report.<sup>1</sup> Over the past four years our "vascular bank" has processed over two hundred human aortas. In this manner, a constant supply of arterial segments has been available to meet any

demand. Since the establishment of the "bank," freeze-dried homografts have been implanted in 149 patients. The indications for graft interpolation and the results of these procedures are summarized in table 1. Arteriosclerotic aneurysm of the ab-

Table 1  
RESULTS OF HOMOGRAFT IMPLANTATION IN 149 PATIENTS

Disease Process	No. of Cases	Deaths	Mortality Rate
Arteriosclerotic aneurysm of abdominal aorta:			
Ruptured	9	4	44%
Unruptured	41	4	10%
Arteriosclerotic occlusive disease of terminal aorta	44	6	14%
Segmental occlusion of peripheral artery	11	1	9%
Aneurysm of thoracic aorta	5	4	80%
Coarctation of aorta	11	0	0
Aneurysm of peripheral artery	10	1	10%
Arteriovenous fistula	2	0	0
Venous obstruction	2	0	0
Traumatic arterial injury	6	0	0
Neoplastic arterial occlusion	4	1	25%
Congenital heart disease	3	1	33%
	149	21	

dominal aorta and arteriosclerotic occlusive disease of the terminal aorta have been the two most common indications for arterial grafting. The operative procedures most frequently used are illustrated in figures 1 and 2.

2. *Synthetic Prosthesis Series.* Synthetic prostheses have been used to replace or bypass diseased vascular segments in 34 patients. Crimped Nylon, crimped Dacron, woven Nylon and woven Dacron-teflon have been the synthetic prostheses employed. The results of and indications for arterial

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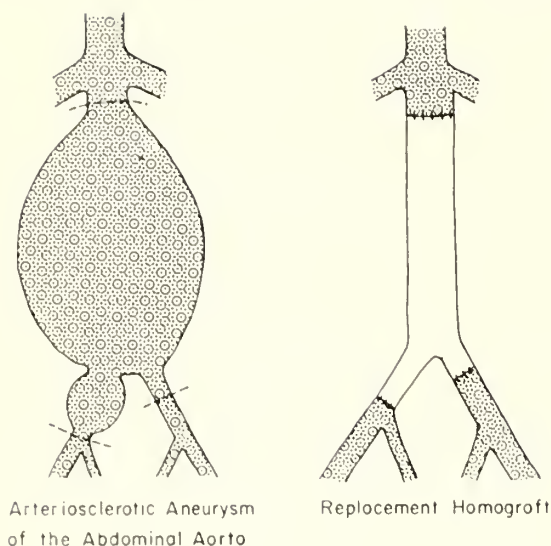


FIG. 1. Schematic representation of aneurysm of abdominal aorta arising below origin and renal arteries. Lines of resection are indicated. Restoration of aortic continuity with a homograft is also depicted.

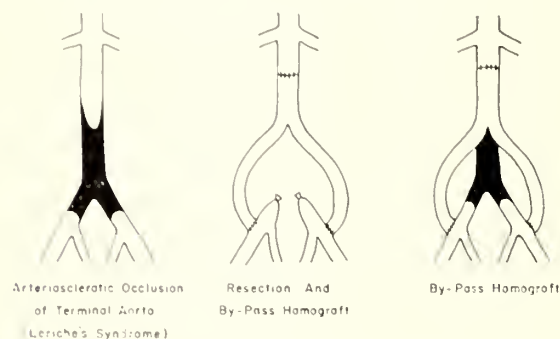


FIG. 2. Schematic representation of arteriosclerotic occlusive disease of terminal aorta (Leriche's Syndrome), and methods of treatment with by-pass grafts.

Table 2

Disease Process	RESULTS OF SYNTHETIC PROSTHESIS IMPLANTATION		
	No. of Cases	Deaths	Mortality Rate
Arteriosclerotic aneurysm of abdominal aorta	5	0	0
Arteriosclerotic occlusive disease of terminal aorta	9	3	33%
Segmental occlusion of peripheral artery	16	0	0
Aneurysm of thoracic aorta	2	1	50%
Traumatic arterial injury	2	0	0
	34	4	

grafting in these patients are listed in table 2. Segmental arteriosclerotic occlusion of a peripheral artery has been the most common indication in this group of patients. The superficial femoral artery has been the peripheral vessel most commonly occluded. The operative procedure generally used for

correction of such an occlusion is illustrated in figure 3.

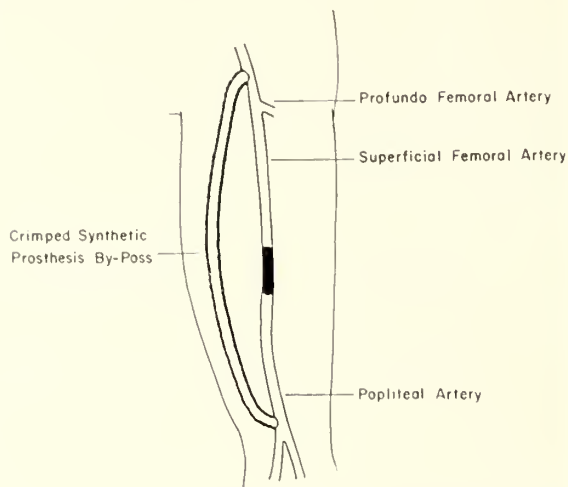


FIG. 3. Schematic illustration of synthetic by-pass graft employed in a case of segmental arteriosclerotic occlusive disease of superficial femoral artery.

### Discussion

The results with arterial grafting procedures have been gratifying. Less than a decade ago the only treatment available in many of these conditions was proximal ligation of the artery or lumbar sympathectomy. As experience has accumulated, the techniques and results have improved. Patients are now being seen earlier in the course of their disease. In our first report, in 1955, there were 11 aneurysms of the abdominal aorta treated by resection and grafting with 4 deaths (36%). Since that time there have been 44 more patients with abdominal aneurysm so treated; again with 4 deaths (9%). In the last 28 such patients there has been but one death (4%). Rupture of an aneurysm prior to surgical intervention remains the greatest deterrent to a successful outcome. Fortunately, all of the abdominal aneurysms in this series originated below the renal arteries and allowed anastomosis of the grafts, after resection of the aneurysm, without encroachment of the renal vessels.

The results with treatment of arteriosclerotic occlusion of the terminal aorta (Leriche's Syndrome) have likewise improved. In many of these cases the occlusive disease extends far distally into the iliac vessels. By employing by-pass grafts from the aorta to the femoral arteries blood flow



to the extremities can be improved without disturbing collateral vessels in the region of the aortic bifurcation. On the same basis by-pass grafts have been employed for segmental occlusions of the femoral artery.

The other arterial lesions listed in tables 1 and 2 have responded well to resection and restoration of normal circulation by graft implantation. Prior to the advent of grafting procedures, many patients with long segment coarctation of the aorta, arteriovenous fistula, and traumatic arterial injuries were doomed to deficit blood flow distal to these lesions.

The follow-up studies, which now extend for periods exceeding four years, have generally shown no recurrence of symptoms and good maintenance of function. The incidence of thrombosis in grafts has been exceedingly low—less than 5% in the homograft series and about 10% in the synthetic prosthesis group. Instances of thrombosis have been limited primarily to grafts in small vessels (i.e. carotid, popliteal and femoral arteries). There has been no evidence of aneurysmal dilatation of any of the grafts. Aortograms performed as late as three years after graft implantation have shown maintenance of structural integrity

of the arterial substitute. While freeze-dry arterial homografts have functioned very well indeed, it is likely that the improved synthetic prostheses currently available will largely replace the homograft as arterial substitutes.

### Summary

Freeze-dry arterial homografts and synthetic prostheses have been used to replace or by-pass diseased vascular segments in 183 patients at the Vanderbilt University Medical Center.

These patients have been followed for periods of time up to four and one-half years. The results have been good. The incidence of thrombosis of grafts has been low and there has been no evidence of aneurysmal dilatation of the grafts.

### References

1. Collins, H. A., and Foster, J. H.: The Establishment of an Arterial Bank Using Lyophilization and Ethylene Oxide Sterilization, *Am. Surgeon* 20:820, 1954.
2. Scott, H. W., Jr., Collins, H. A., and Foster, J. H.: Clinical Experience with Arterial Homografts Sterilized with Ethylene Oxide and Preserved by the Freeze-Dry Method. *J. Tennessee M. A.* 48:435, 1955.

### Oral Therapy for Diabetics with Tuberculosis.

(Correspondence): Wells, Ronald, and Yam, Tan Bock: *Brit. M. J.* 1:220, 1958.

The authors report their experiences with tolbutamide therapy in over 300 diabetics, including 34 with active pulmonary tuberculosis. It was found that 20 of the 34 tuberculous diabetics were well controlled on tolbutamide therapy and that 6 more were fairly well controlled. The remaining 8 patients in this group were poorly controlled on tolbutamide and were eventually treated with insulin. In 27 of these tuberculous diabetics who had previously been treated with insulin, it was found that their control on tolbutamide was at least as good in 20 patients and was actually better in 7 cases. This study was initiated partially because the authors found it virtually impossible to resist the insistent demand for the "new tablets" from diabetics of all types. (Abstracted for the Tennessee Diabetes Association by Charles A. Rosenberg, M.D., Memphis.)

Much statistical data must still be collected to evaluate the geographic and socio-economic factors which may play a part in arteriosclerotic heart disease.

## Distribution of Mortality From Coronary Artery Disease In Tennessee 1949-1953\*

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In a recent analysis of mortality rates from coronary artery disease in the United States, it was shown that there are apparently real geographic differences, and that in 1950, the age-adjusted death rates for coronary artery disease were roughly twice as high in some states as in others. In addition, data were presented to show that these geographic differences were not due to differences in urbanization in various parts of the country.<sup>1</sup> Another study has been reported analyzing mortality from coronary artery disease in Manhattan, New York City. This survey of a highly urbanized area again showed real geographic differences in the population units investigated, and also demonstrated an inverse relationship between the median income and death rate from coronary artery disease by health areas.

In the nationwide study of Enterline and Stewart,<sup>1</sup> Tennessee was reported to have one of the lowest death rates from coronary artery disease in the nation, in 1950. The State is also representative of a section of the country (East South Central) ranking lowest in mortality from coronary artery disease. Because Tennessee has extensive rural areas with widely dispersed urban districts, it was felt that valuable complementary information could be obtained by an analysis of Tennessee mortality from coronary artery disease, using county population groups as the study units. The purpose of this paper is to report the results of this analysis with consideration of the re-

lationships of the coronary artery disease death rates to certain population characteristics.

### Method

For this study of mortality from coronary artery disease, all resident white deaths assigned to the rubric 420, arteriosclerotic heart disease (including coronary disease) of the *International Classification of Diseases*, 1948, during the five years 1949-1953 were included. In order to eliminate age as a factor, the average annual rates per 100,000 population were adjusted to the age distribution of the population of the State in 1950. The analysis by individual county was restricted to deaths of white males only. For counties grouped according to population, age adjusted rates were obtained for white females as well as for white males. The counties were divided into three groups, as follows:

- I. Urban counties—4 counties with cities of 100,000 or over population
- II. Intermediate counties—11 counties with cities of 10,000 to 100,000 population
- III. Rural counties—80 counties with no city of as much as 10,000 population

### Results of Analysis

Table 1 presents the data for the three groups of counties in the white population by sex.

From this table it can be seen that the male and female rates decrease as urbanization decreases; a decrease of 36% between urban and rural for the males; and 27.7% between urban and rural for females. The male death rate is about twice the female rate in all three groups.

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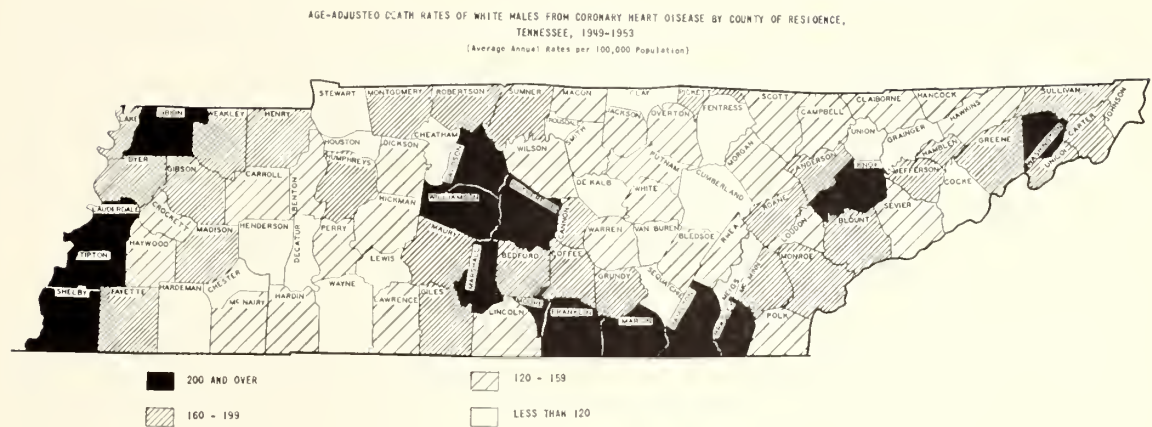


FIG. 1.

Table 1  
MORTALITY\* FROM CORONARY HEART DISEASE BY SEX FOR THREE POPULATION GROUPS, TENNESSEE, 1949-1953

Population Group	Male	Female
State	187.1	95.9
Urban Counties	233.7	113.0
Intermediate Counties	198.1	105.5
Rural Counties	156.9	81.6

\*Average annual rate per 100,000 population adjusted for age.

For the study of coronary heart disease by individual county, the data have been limited to white males only—the group with highest mortality. Figure 1 shows the age-adjusted rates by county. There is no outstanding geographic pattern to the rates. High rates are found in all three sections of the State. In general, counties in the Cum-

berland Plateau region in the mid-eastern portion, and in the area of the Tennessee River as it flows north in the western portion have the lowest mortality. These counties all fall into the rural group and are, also, counties with limited medical facilities. Eight rural counties have death rates from coronary artery disease of 200 or over, all of these counties being clustered about three of the four urban counties.

The counties were distributed according to median income, population group and mortality group as shown in table 2. Median income is that given in the 1950 Census of Population and refers to income of families and unrelated individuals. Income of only white families and individuals is included.

Table 2  
DISTRIBUTION OF 95 COUNTIES OF TENNESSEE ACCORDING TO MORTALITY\* OF WHITE MALES FROM CORONARY HEART DISEASE BY MEDIAN INCOME AND BY POPULATION GROUP, 1949-1953

Median Income** and Population Group	Total	200 & Over	160- 199	120- 159	Less than 120
Total	95	15	29	30	21
Urban	4	4			
Intermediate	11	3	8		
Rural	80	8	21	30	21
Income \$2,000 & Over	10	4	6		
Urban	4	4			
Intermediate	4		4		
Rural	2		2		
Income \$1,500-\$1,999	23	7	10	6	
Urban	7	3	4		
Intermediate	16	4	6	6	
Rural	44	4	12	18	10
Income \$1,000-\$1,499	44	4	12	18	10
Urban	18		1	6	11
Intermediate					
Rural	18		1	6	11

\*Average annual rate per 100,000 population adjusted for age.  
\*\*According to 1950 Census of Population, Vol. II, General Characteristics, Tennessee.

In studying median income with reference to deaths from coronary artery disease, we find much the same picture as with urbanization. As income increases death rates increase. Income and urbanization are related to each other. The association of these death rates with income may be more a reflection of the effect of urbanization than a real association with income.

An examination by county or density of population shows that this factor is also related to median income and population group. It is noted that as density of population increases death rates from coronary heart disease increase.

### Discussion

The results obtained in this analysis of deaths from coronary artery disease in Tennessee show certain differences from similar studies previously reported.<sup>1,2</sup> Tennessee is in the midst of a region of the nation which has been found to have a low death rate from coronary artery disease. Mortality in Tennessee is not uniform over the State, but, as can be seen in figure 1, no definite geographic relationship is noted.

The most striking observation is the close relationship between urbanization, median income, density of population and mortality from coronary artery disease. The data showing a relationship with urbanization correlates well with work of Enterline and Stewart, but the data exhibiting a direct association with median income is in distinct contradiction of the findings in the Manhattan survey. Reasons for this seeming contradiction readily appear to mind; the most patent and logical reason being a sociologic factor of a difference in urban living between Tennessee and Manhattan. Other studies regarding income and/or socio-economic status and mortality from coronary artery disease have shown varying results.<sup>3,4</sup>

The data presented in this paper can go

no further than to offer certain clues as to the relationship of individuals dying from coronary artery disease and the population groups with which they are associated. Intensive field investigations of selected population groups utilizing the data presented would seem to be most profitable in further study of this disease.

### Summary

Average age-adjusted death rates in the white population from coronary artery disease in Tennessee for the five year period 1949-1953 have been analyzed for possible geographic distribution and relationship to urbanization, median income, and density of population by county.

No definite geographic distribution can be demonstrated.

A direct relationship to urbanization is shown. the mortality in both white males and females decreasing as urbanization decreases.

A similar direct relationship is shown between median income and density of population and mortality from coronary artery disease in the white male.

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Acknowledgment is made of the valuable contributions of Miss Ann Dillon, Director of Statistical Service, Tennessee Department of Public Health and Miss Katherine Vaughan, Secretary to the Heart Disease Control Program in the preparation of this report.

### References

1. Enterline, P. E. and Stewart, W. H.: Geographic Patterns in Death from Coronary Heart Disease, Pub. Health Rep. 71:849, 1956.
2. Kent, A. P., McCarroll, J. R., Schweitzer, M. D., and Willard, H. N.: A Comparison of Coronary Artery Disease (Arteriosclerotic Heart Disease) Deaths in Health Areas of Manhattan, Am. J. Pub. Health 48:200, 1958.
3. Lilienfeld, A. M.: Variation in Mortality from Heart Disease—Race, Sex, and Socioeconomic Status, Pub. Health Rep. 71:545, 1956.
4. Lew, Edward A.: Heart Disease and Socio-economic Status, Statist. Bull., Metrop. Life Insur. Co. 39:6, 1958.



The author describes his experiences with an operation for use in certain instances of otosclerosis.

## Fenestration of the Oval Window\*

JOHN J. SHEA, JR., M.D., Memphis, Tenn.

I would like to describe a new operation for those difficult cases of otosclerosis that cannot be improved by the ordinary methods of mobilization of the stapes. I first described this technic at the Symposium on Mobilization of the Stapes in Montreal in May of 1956.<sup>1</sup> In the original description the stapes was removed and the fenestra was covered with a thin slice of subcutaneous tissue. A Teflon replica of the stapes was used to reconstruct the sound conducting mechanism. This presentation will report the progress since that time.

If the otosclerotic fixation of the stapes is not too extensive it can be relieved by the ordinary methods of mobilization. I shall concern myself in this presentation with only those cases in which the fixation of the stapes is so widespread as to preclude permanent mobilization of the bone. The center of the footplate may or may not be quite thin.

These cases are characterized by a flat descending type of hearing curve. The amount of conductive loss is determined by the thickness of the center of the footplate, since gross motion of the stapes is not possible. I have proposed in a previous publication that the conductive hearing loss will not exceed 40 to 50 decibels at 256 cycles from otosclerotic fixation of the stapes alone.<sup>2</sup> If there is a conductive hearing loss in excess of this amount it must be due to otosclerotic invasion and thickening of the footplate. If the center of the footplate remains quite thin sound will penetrate it and the hearing loss will not exceed 40 to 45 decibels at 256 cycles.

### Technic

In these cases with extensive peripheral fixation of the footplate I routinely begin

the operation by fracturing the crura at the footplate by gentle inferior pressure in the depression of the head with a strong pick. This is easily done. The arch and head of the stapes are next separated from the lower end of the incus, being careful that the lenticular process remains at the lower end of the incus and is not carried away with the head of the stapes. The mucous membrane covering the footplate, facial nerve and promontory are carefully removed for a distance of 1 mm. Perfect hemostasis is obtained.

A tourniquet is applied to the forearm. After the subcutaneous veins in the back of the hand have become engorged a suitable one of medium size is chosen, and the overlying skin is prepared for surgery.

A 5 mm. length of one of these subcutaneous veins is removed. After the surrounding connective tissue is cut away this length of vein is opened and placed over the promontory with the intima upward.

Most of the footplate is then removed. Great care is taken that no bony fragments are lost in the vestibule. The initial penetration of the footplate is usually made with a sharp pick. The fragments are then removed with special strong stainless steel fistula hooks. If the footplate is quite thick the fenestra is created with the very small diamond burr on the contra angle hand piece by the pulverizing technic as used in fenestration of the lateral semicircular canal. With either method the penetration is accomplished, and the bone of the footplate is carefully removed to create a fenestra in the oval window measuring 1 by 1 mm. or larger. In some cases the entire footplate is taken out. Great care is taken to see that no blood enters the vestibule. The delicate lining endosteum of the footplate is preserved. After the fenestra is created the endosteum is laid out over

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, April 21, 1958, Gatlinburg, Tenn.

the edges as in the lateral semicircular canal. (Fig. 1.)

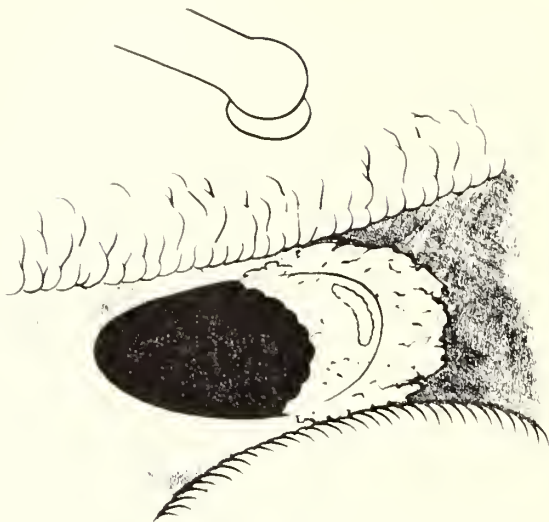


FIG. 1.

The piece of vein graft is then carefully slid into place over the fenestra and the central portion is invaginated into the opening.

A length of sterile polyethylene  $\pm 90$  tubing is then prepared to rebuild the sound conducting mechanism. One end of this tubing is crosshatched, and the cut ends are expanded to make a collet to fit around the lenticular process which remains at the lower end of the incus. The other end is cut on an angle to make as small a projection as possible to fit in the center of the vein graft invaginated into the fenestra in the oval window. The over-all length of the implant is about 2.5 mm.

This tubing is inserted by holding the crosshatched end with delicate forceps and gently pushing the pointed end a little way into the vein graft covering the fenestra. With a pointed instrument the upper end of this tubing is depressed a little below the level of the lenticular process and then shifted over beneath the lenticular process where it rises upward to surround it. This collet makes a secure connection between the lower end of the incus and the polyethylene implant. (Fig. 2.)

The graft is meticulously fitted into its proper position, and care is taken to see that it lays flat in its bed on the facial nerve and promontory. The drum is put back in place. The patient is kept with the operated ear upmost for 48 hours. Chloromycetin is

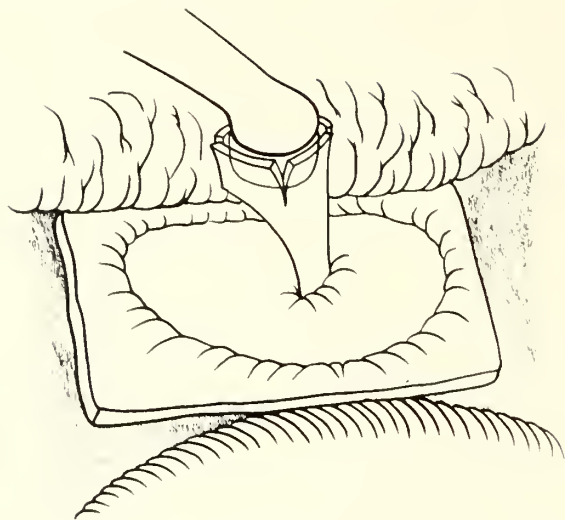


FIG. 2.

taken by mouth for 5 days as a precaution against infection.

### Results

At the present time 150 patients have been treated by this new technic during the last twelve months. There have been no serious complications. In most cases the amount of vertigo postoperatively was less than one usually sees with a stapes mobilization. It was never as severe as following fenestration of the lateral semicircular canal. When the patient does have vertigo it is usually of the postural type, being less severe with the ear operated upon uppermost, and aggravated by any sudden motion of the head. These patients have little nystagmus at any time.

The results to date have been very encouraging, but it is as yet too soon to be certain of the effectiveness of this new technic. Suffice to say that approximately three-fourths of these patients have been dramatically improved. It is important to realize that most of these had been operated upon unsuccessfully by the ordinary methods of mobilization of the stapes. (Fig. 3.)

It is interesting to note that these cases

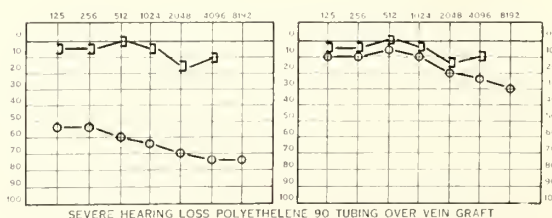


FIG. 3.

usually fall into one of two groups post-operatively. The hearing is either markedly improved or the same. The most important reason for failure is exudation and bleeding in the middle ear at the time of and immediately following operation. This brings about fibrosis in the middle ear from organization of the exudate. Patients vary greatly in their tendency to fibrous tissue formation. Those patients who have considerable exudation in the middle ear following operation, and develop excessive fibrous tissue, usually do not have a good result. Those patients with little or no exudation in the middle ear usually do well.

#### Comments

I have presented a new operation which embodies the best features of both fenestration of the lateral semicircular canal and

mobilization of the stapes. A fenestra is created in the oval window and the stapes mechanism is rebuilt which is quite mobile. At the present time this new operation is used only in those cases in which the patient cannot be successfully treated by stapes mobilization, but I believe that with the passage of time we will come to realize that this technic of fenestration of the oval window and rebuilding the sound conducting mechanism is the most satisfactory method for long term permanent hearing improvement for all cases.

#### References

1. Symposium: The Operation of Mobilization of the Stapes in Otosclerotic Deafness, *Laryngoscope* 66:729, 1956.
2. Shea, John J., Jr.: Fenestration of the Oval Window, *Ann. Otol. Rhin. & Laryng.* 67: 1958.

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#### **The Electrocardiogram in Pectus Excavatum. De Oliveira, Jorge Martins, Sambhi, Mohinder P., and Zimmerman, Henry: *Brit. Heart J.* 20:495, 1958.**

Pectus excavatum, a chest deformity due to backward displacement of the sternum and costal cartilages has often been described in association with congenital heart disease. This study is based on 13 patients who had pectus excavatum in whom no evidence of heart disease was found. The ages ranged from 5 to 75 years. Twelve classical leads were recorded in all patients, and in two of them intracavitary electrocardiograms were also studied. The tracings were measured and vectors for the different planes were plotted.

The change in cardiac position caused by the thoracic deformity in patients with pectus excavatum produces more or less constant characteristic electrocardiographic findings.

These findings consist of: (a) an S-wave in both standard frontal lead 1 and 3 or an S in 1 and a Q-wave in lead 3; (b) inverted P-waves in lead V1; and (c) a QR or an RSR' in lead V1. The authors consider these findings as being primarily related to clockwise rotation of the heart on its longitudinal axis, backward orientation of the auricular vector, and transmission of intracavitary potentials to the right precordial leads.

These changes, which, for different reasons, can be seen in other conditions like atrial septal defect or mitral stenosis with pulmonary hypertension, may lead to erroneous diagnosis if the electrocardiogram is analyzed without previous knowledge of the existence of pectus excavatum. (Reviewed for the Middle Tennessee Heart Association by Fred Goldner, M.D., Nashville.)



## CASE REPORT

### Porphyria Cutanea Tarda\*

J. L. Diamond, M.D., Oak Ridge, Tenn.

Porphyrin is any of a group of iron-free or magnesium-free tetra-pyrrole derivatives, which in animals come from hemoglobin. Porphyria is a disease in porphyrin metabolism in which uroporphyrin is excreted. Commonly recognized<sup>1</sup> are: (1) the congenital or light sensitive forms, (2) intermittently acute group, and (3) a mixed type. The photosensitive groups, especially rare, occur more frequently in the early ages and are more commonly seen in males. In the intermittently acute or mixed types, photosensitivity, which is not the major factor, occurs most frequently after the age of forty and is more common in females. It is this type which is quite often overlooked. It is considered that the congenital, light-sensitive types are associated with an "in-born error" of porphyrin metabolism. The acquired type may have a familial or hereditary background. Barbiturates, heavy metal poisoning (especially the benzene ring components) hepatic disease, some nerve diseases, and some anemias may induce or activate latent porphyria.

In the photosensitive types the principal lesions are those due to light sensitivity of the exposed areas of the skin, such as the face, ears, and hands. The lesions are bullous and vesicular with subsequent infections, scarring and exacerbations of photosensitization which may even produce severe mutilation. In some cases, ectropion (See Fig. 1) with scarring of the conjunctiva



FIG. 1.

\*From the Oak Ridge Hospital, Oak Ridge, Tenn.

and cornea are present in later stages, as well as the irregular pitting and scarring of exposed skin. In the intermittent type the pathologic changes frequently involve the neuromuscular systems. Occasionally the skin lesions become eczematoid.

It is in this cutanea tardive group of porphyrias that the photosensitivity does not begin until later in adult life, when patients are more readily sensitized by heat and trauma as well as by light. Frequently, one finds the hormonal balance affected with masculinism and hirsutism in women. Of considerable interest in the case report below is that this man lost all body hair about the time the porphyria became manifest.

In the acute mixed or cutanea tarda types the nervous system is often affected. The more acute attacks are preceded by nervousness, neurasthenia, hysteria, psychoses, delirium, coma, and even epilepsy. The behaviour manifested may be an alternate manic depression and a peculiar shrewism called termagantism. Paresia of the eye muscles and vocal cords may occur. The abdominal manifestations may simulate cholelithiasis, renal colic, appendicitis, lead poisoning, and glomerulonephritis. Frequently porphyria is associated with liver diseases, especially in alcoholics with liver damage. As in the case presented below, alcoholic debauches frequently precipitate acute attacks of porphyria. A number of cases have been reported associated with diabetes which, when out of control, initiates an acute phase. The patient of this case report exhibited latent diabetes.

The diagnosis is made, not only from the skin manifestations, viz: bullae, vesicles, depigmentations, melanosis, scarring, and atrophy in the affected exposed areas of the skin, but also in the discovery of porphobilinogenuria and uroporphyrin. Porphobilinogen is not generally found in the congenital type, but frequently occurs in the mixed varieties associated with abdominal and nervous symptoms. Finding a red urine is the usual method of attracting attention to the possibility of a diagnosis of porphyria. A spectroscopic examination of the mixed types of porphyria may not always show porphyrins, but assiduous



follow-up surveys eventually will show porphobilinogen. This is particularly prominent in the acute attacks and can be demonstrated by the Watson-Schwartz test. It is also suggested by simple ultraviolet fluorescence. The congenital forms exhibit coproporphyrinuria, while in the tarda types, we generally find we are dealing with the zinc complex varieties. It is in these late developing types that the urine is more brown than the deeply red urines of the photosensitive type.

The uroporphyrin varies according to the extent and the acuity of the skin manifestations. It is this disturbance of pigments of the body leading to porphyrinuria which leads to the belief that hematoporphyrin has a capacity for sensitizing tissues. It is this metabolic error which is called photodynamic sensitization. The criteria, however, for establishing the diagnosis of porphyria is uroporphyrin in abnormal amounts (normal 1 to 7 mg., or in 24 hours specimens normal values of 24 to 40 mg.), as well as colorless chromogen porphobilinogenuria.<sup>2</sup> Brunsting<sup>2,3</sup> points out that alcoholism is a major offender as a damaging influence on the liver. He points out an erythropoietic group in which excessive uroporphyrin and coproporphyrin form in developing the red cells of the bone marrow and a second group, called the hepatic group, in which the liver is regarded as the principal site of porphyrin formation. He divides this latter group into (1) the intermittent acute and (2) the chronic or mixed forms often labeled cutanea tarda. He further indicates that while alcohol and barbiturates flare up porphyria, it is difficult to induce porphyria attacks when these patients are exposed to light. Although ordinary window glass absorbs exciting light (below 3,000 Å), the photosensitive types of porphyria are affected by wave lengths above 3,000 Å, indicating that window glass is not protective. One concludes that repeated exposures to light is necessary to photosensitize a porphyria patient, since ordinary exposure cannot induce acute attacks experimentally.

Wells and Remington<sup>4</sup> showed that acute porphyria and porphyria cutanea tarda are distinct both pathologically and biochem-

ically. They showed that in the cutanea tarda type large quantities of porphyrin are excreted in the stool during remissions, and a fall in this level occurs during attacks or exacerbations when the urinary porphyrins rise. During these attacks, porphyrin is detectable in the plasma and photosensitivity becomes more severe.

### Case Report

This is a 56 year old man who was first diagnosed as having porphyria early in 1954, when he developed numerous vesicles, bullae, ulcerations, scarring, atrophy, and melanosis progressively extending from the dorsum of the hands to the shoulders and involving the neck and face. There were subsequent areas of increased melanosis extending down the trunk. He had no history of photosensitivity in early life, but did give us a history of alcoholism and definite evidence of various forms of nervousness. He has had vague abdominal pains and spells of manic-depressive reactions to the point where I once barely intercepted an attempt at suicide.

He has had a history of intermittent spells of acute eruption beginning with vesiculation and subsequently developed ulceration and infection following simple bruises and exposures to heat and mild friction. He has noticed that after alcoholic debauches acute abdominal pains recur and nervousness and skin manifestations become more prominent. He has noticed that sunlight can produce ulceration. In the past 4 years he lost all his body hair. In the past 3 years, he has suffered total loss of libido. He has noticed some paresthesia and numbness of the face. At no time have there been changes in pigmentation of the mucous membranes.

The liver was enlarged on palpation. At the belt line there was a sharp demarcation between pigmented and nonpigmented skin.

Laboratory studies showed negative serologic tests for syphilis, negative urinalysis, and normal blood counts. The N.P.N., uric acid, cholesterol, CO<sub>2</sub>, sodium, potassium and calcium blood levels were all normal. Protein initially was 7.7 Gm. with an A/G ratio of 3.0/4.7, and a second test showed a protein of 8 Gm. with continued altered A/G ratio of 3.1/4.9 Gm. per 100 cc. The glucose tolerance test showed hyperglycemia, indicating a diabetic type glucose tolerance curve with a fasting blood sugar of 115, thirty minute level of 213, one hour of 290, two hours of 328, and at three hours a level of 228 mg. per 100 cc.<sup>5</sup> All accompanying hourly urines contained sugar. The prothrombin, alkaline phosphatase, thymol turbidity tests were normal. Ketosteroid urinary excretion in 24 hours was 9.6 mg. (normal 15). The Ven Den Bergh test showed elevation with a direct bilirubin of 0.7 (normal 0-0.21) and a total bilirubin of 1.1 (normal 0.2-0.8) mg. per 100 cc. The cephalin flocculation was 3+ at 24

and 48 hours. Needle biopsy of the liver indicated liver damage with fibrous tissue replacement. Biopsy of the skin from the forearm showed evidence that was compatible morphologically with porphyria.

On numerous occasions, single specimens of urine were negative for porphyrins. However, other specimens exposed to sunlight changed color from yellow to red. By Wood's light, in a dark room, the urine showed some fluorescence. Other urine specimens were deep red in color, during the acute phases. In a 24 hour specimen there was definite elevation to 66 mg. of uroporphyrin (normal 22-40).

Since no specific therapy is known, treatment has been symptomatic. We firmly stressed avoidance of alcohol in all forms and avoidance of sun and artificial light to the best of the patient's ability. He was given a high-carbohydrate, high-protein, low-fat diet, tranquilizers as indicated, and, occasionally, because of the sensitivity, antihistamines have been used empirically.

### Summary

A case of porphyria cutanea tarda has been presented. Patients having abnormalities of porphyrin metabolism may present puzzling and bizarre clinical pictures.

### References

1. Watson, C. J.: *Porphyria*, Cecil-Loeb Textbook of Medicine, Philadelphia. Saunders & Co. 8th Ed.
2. Brunsting, L., et al: *Adult Form of Chronic Porphyria with Cutaneous Manifestations*, J.A.M.A. 146:1207, 1951.
3. Brunsting, Louis: *Observations on Porphyria Cutanea Tarda*, A.M.A. Arch. Derm. & Syph. 70:551, 1954.
4. Wells & Remington: *Studies on a Case of Porphyria Cutanea Tarda*, Brit. J. Derm. 65:337, 1953.
5. Ellis, Mackinnon and Wilson, Shelburne: June Issue, Personal Communication.

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### Evaluation of a Nitroprusside Dip Test for Ketone Bodies: Chertack, Melvin M., and Sherrick, Joseph C.: J.A.M.A. 167:1621, 1958.

Ketostix, a new nitroprusside stick test for urine ketone detection, was compared with a tablet nitroprusside test (Acetest) and the test tube Rothera procedure on a series of urine specimens in a large city hospital. Results indicated that good agreement is obtained with Ketostix and Acetest but that the Rothera modification used was somewhat more sensitive. A series of 260 tests with Ketostix on negative urine specimens with and without added acetoacetic acid was carried out as "unknowns" by laboratory personnel who had had no previous experience with the test. Results obtained were those to be expected from the amounts of acetoacetic acid added and agreed well with results obtained on the same specimens by experienced personnel. Ketostix appeared to be a satisfactory, simple but accurate test for routine detection of ketones in urine and serum. (Abstracted for the Tennessee Diabetes Association by Charles A. Rosenberg, M.D., Memphis.)

## CASE REPORT

### Presentation of an Unusual Case of Progressive Exophthalmos\*

Reese W. Patterson, Jr., M.D., and  
J. Ed. Campbell, Jr., M.D., Knoxville, Tenn.

B. B., age 29 years, was first seen by us on July 29, 1958, after referral by an otolaryngologist who had been treating her for sore throat of several days duration. She developed severe headaches and complained of pain and tearing in the left eye. Examination revealed 20/30 vision in both eyes without correction and definite 3 to 4 mm proptosis of the left eye with marked edema and tenderness about the left orbit. Because of the tenderness and the rather sudden onset of symptoms, the diagnosis of retrobulbar abscess was entertained and hospitalization advised.

The admission laboratory work revealed: Hgb. 12 Gm., W.B.C. count of 11,000, with 78% polys., a P.C.V. of 35%, and a sedimentation rate of 34 mm. The urine was negative, as was a blood test for syphilis. Blood agglutinations and culture were negative. X-ray studies of the skull orbits and foramina and chest were negative.

During the initial period of hospitalization, massive doses of antibiotics were administered, but the course of the exophthalmos rapidly increased in severity. The proptosis and chemosis became extreme and the problem of exposure of the cornea arose.

An internist was consulted for an evaluation of the patient's thyroid status but no evidence of thyroid dysfunction could be found. Protein-bound-iodine and radioactive uptake studies were all within normal limits.

At this point, ACTH was begun in a desperate effort to halt the progression of the exophthalmos along with desiccated thyroid at the suggestion of the internist. The emotional stability of the patient became uncontrollable and prednisone, 40 mg. daily, was substituted for the ACTH. Within a matter of days the proptosis and chemosis began to show definite improvement.

The antibiotics and prednisone were then reduced but immediately the symptoms recurred with equal severity, but this time the right eye also began showing definite conjunctival edema. All of the medications were restored and then slowly discontinued one by one until prednisone alone remained. Having established that the prednisone was the agent controlling the exophthalmos, an effort was made to reduce this drug until a satisfactory maintenance dose was found. The patient was discharged on prednisone, 30 mg. daily, and this was gradually reduced to 8 mg. daily. On several occasions mild symptoms recurred but each time the chemosis responded well to a slight increase in dosage.

Now, 9 months since the initial attack, the proptosis is gone and no recent exacerbation has appeared. The patient has received no medication for the past 2 months.

### Discussion

As stated previously, the diagnosis of orbital cellulitis or retrobulbar abscess was first made in this case because of the sudden onset following a sore throat and the marked tenderness and chemosis. A so-called pseudotumor was considered but this condition usually has a much slower onset, has a more chronic course and does not have severe pain as a prominent feature. (1) The majority of cases of pseudotumor are unilateral, although bilateral involvement can occur; during one of the exacerbations in the present case, there was definite chemosis of the previously uninvolved eye.

Progressive exophthalmos associated with thyrotoxicosis was thought a possibility, but the physical examination and the laboratory data failed to confirm this. It is of interest that following the patient's discharge, a new test for hyperthyroidism was done utilizing tri-iodothyronine and the twenty-four hour radioactive uptake method described by Werner<sup>2</sup> in 1955. This test was also negative for thyroid dysfunction. The etiology in the present case was obscure but cases of progressive exophthalmos may occur in the absence of any demonstrable thyroid abnormality.

Pertinent literature in recent years contains an increasing number of case histories dealing with the various aspects of progressive exophthalmos with and without thyroid dysfunction. Exophthalmos of any degree may occur with, or appear after the manifestation of hyperthyroidism, and occasionally the proptosis may precede the hyperthyroidism by many months. The exophthalmos is believed to be caused by an excess of thyroid stimulating hormone or of a closely related material called exophthalmos-producing substance also elaborated by the pituitary. Attempts at reducing the exophthalmos are for the most part designed to suppress pituitary hyperactivity. In many instances there is a gradual tendency to spontaneous improvement and this makes it difficult to evaluate different forms of therapy.

\*Read at the Meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, April 22, 1958, Gatlinburg, Tenn.



McCullagh<sup>3</sup> in March, 1958, reported on a series of patients with Graves' disease with varying degrees of exophthalmos, 10 of whom received ACTH and cortisone therapy. Each patient received 50 mg. of ACTH intravenously daily for 5 to 16 days and 200 mg. of hydrocortisone daily. There was symptomatic improvement in all 10 cases, but dramatic improvement in the proptosis occurred in only 2 patients, and in these 2 active hyperthyroidism was present.

Kinsell and Partridge<sup>4</sup> in 1953, reported 9 cases of malignant exophthalmos associated with obvious or probable thyroid dysfunction. Treatment here consisted of simultaneous administration of 40 mg. of ACTH and 200 to 600 mg. of cortisone daily. Improvement in all 9 cases on this regimen was marked and immediate; the authors advise extremely high dosages in such cases. On this medication one of their patients developed a temporary psychosis and another a perforated peptic ulcer.

Chandler and Hartfall<sup>5</sup>, in 1952, reported 5 patients with malignant exophthalmos, 4 of whom were associated with thyrotoxicosis, and these patients were either treated with 25 mg. ACTH every 6 hours or 100 mg. of cortisone daily, and in 4 of these there was definite improvement in the proptosis.

Salassa<sup>6</sup>, in 1950, presented 3 patients with severe exophthalmos, without evidence of thyroid disease, who were treated with ACTH, 80 mg. daily, or cortisone, 150 mg. daily, but no improvement was noted.

Rubin<sup>7</sup>, in 1954, reported a case of malignant exophthalmos not associated with thyrotoxicosis which was treated with both

ACTH and cortisone, resulting in a striking remission within 48 hours.

In 1955, a report by the Medical Research Council<sup>8</sup>, in an English publication, revealed 28 cases of severe exophthalmos treated with ACTH or cortisone, but found that only 3 were actually benefited by the therapy and that 5 showed some temporary improvement on the relatively small doses used. They felt the cases that showed some promise on cortisone or ACTH therapy were the ones of recent onset showing rapid progression of the proptosis with chemosis.

In *conclusion*, this was a case of progressive exophthalmos of unknown etiology which responded dramatically to ACTH and prednisone therapy.

#### Reference

1. Walsh, R. B.: Clinical Neuro-Ophthalmology. Baltimore, The Williams and Wilkins Co., 1947.
2. Werner, S. C., Spooner, M.: A New and Simple Test for Hyperthyroidism Employing L-Triiodothyromine and the Twenty-Four Hour I-131 Uptake Method, Bull. New York Acad. Med., 31:137, 1955.
3. McCullagh, P., Clamen, M., Gardner, J., Kenneth, R., and Larkhart, G.: Exophthalmos of Graves' Disease: A Summary of Present Status of Therapy, Ann. Int. Med., 1958.
4. Kinsell, L. W., Partridge, J. W., and Foreman, N.: Use of ACTH and Cortisone in Treatment and Differential Diagnosis of Malignant Exophthalmos. Ann. Int. Med. 28:913, 1953.
5. Chandler, G. N., and Hartfall, S. J.: Cortisone and ACTH in Exophthalmic Ophthalmoplegia, Lancet, 1:847, 1952.
6. Salassa, R. M.: Effects of Cortisone and ACTH in Certain Endocrine Functions, Proc. Staff Meet. Mayo Clin. 25: p. 497, 1950.
7. Rubin, T. L., and Billet, E.: Treatment of Malignant Exophthalmos with ACTH and Cortisone, New York J. Med. 54:2991, 1954.
8. Medical Research Panel: Cortisone in Exophthalmos, Lancet 1:6, 1955.



## CLINICOPATHOLOGIC CONFERENCE

### Carcinoma of the Cecum

A 64 year old white farmer's wife was hospitalized six times during a period of two years and two months with numerous complaints. Her chief symptoms were of nausea, belching, epigastric distress, and pain in the right lower quadrant of the abdomen.

**Past History.** At the age of 21 years she had a supracervical hysterectomy, apparently with conservation of the ovaries, for "tumors." No further information was available. A few years subsequently she had been treated for "tuberculosis of the intestines" by injections and sunbaths. At some time during this period her mother had died of "tuberculosis." Twenty-three years ago the patient was given a course of injections in the hips for "malaria."

During the past 8 years she had consulted at least ten physicians in Arkansas and Tennessee. Her most consistent complaint was of recurrent urinary frequency, burning, and sacro-iliac backache. Nervousness and headaches were also mentioned repeatedly. There was objective evidence of recurrent cystitis, with no evidence of an upper urinary tract lesion on repeated excretory urograms. For 3 years she received antibiotics off and on with temporary remissions; then because there was evidence of cystitis cystica, fulguration of the vesical neck was carried out. Again remission was only temporary. Five years later symptoms were still present.

**Present Illness.** She was hospitalized in May, 1956, because of the recent simultaneous onset of vague epigastric distress, described as a sense of fullness rather than actual pain. This was not specifically associated with eating. She did, however, describe constant belching after meals and also with hunger. She stated that any odor of food nauseated her, though not to the point of vomiting. Cold, odorless food was well tolerated. Although she had come into the hospital because of these manifestations, she volunteered that her principle trouble was related to her old urinary tract difficulties. She had no activities whatsoever outside of her household, and was never away from home because she was afraid of urinary frequency and of becoming dizzy. This hospitalization was of less than 24 hours' duration. The diagnostic impression was of acute anxiety reaction. She was given mild sedation with good response, and was discharged to continue treatment of her cystitis as an outpatient.

In June, 1956, she consulted another physician because of "nausea, gas, spastic colon." She

stated that her husband was suffering from "ameba" and her father had died of the same disease. She had been rather extensively examined in the same clinic some months before. Complete gastrointestinal series, EKG, and chest films had all been negative, as had complete laboratory data, excepting slight pyuria. At this time a cholecystogram was made; this was negative. A repeat examination of the stool, however, revealed definite *E. histolytica*. She was given a prescription for glyco-biarsol and chloroquine phosphate tablets, with instructions to return. She failed to do so.

In July, 1956, she was hospitalized by still another physician. There was now occasional vomiting as well as nausea, and she had begun to experience pain in the right lower quadrant of the abdomen on moving. There had been occasional loose stools, apparently not more often than twice daily. Physical findings included distant breath sounds, a minimal irregularity of cardiac rhythm thought due to auricular extrasystoles, and a soft systolic murmur at the apex. There was marked tenderness on deep palpation in the right lower quadrant of the abdomen, and while no definite masses were evident, one examiner noted a sense of firm fullness in the ileocecal area.

At this time urinalysis was entirely negative. The PCV was 38%, WBC count 6,500 with 2% eosinophils, 1% bands, 59% segmented neutrophils, 31% lymphocytes, 7% monocytes. Three consecutive stool specimens were examined directly and cultured for *E. histolytica*. None was demonstrated. A total serum protein was reported 7.5 Gm. with albumin 5.5 Gm. per 100 cc. and A/G ratio 2.7/1. Total cholesterol was 300 mg. per 100 cc. Cephalin cholesterol flocculation 2 plus in 24 hours, 3 plus in 48 hours. BSP showed retention of 33% of dye. A complete gastrointestinal series was within normal limits, although the terminal ileum was not demonstrated because the patient could not retain the barium. Two foci of calcification in the right lower quadrant were thought to be in the soft tissues and of no significance. (The patient stated that these had been present for years and were due to injections she had received for "malaria.") There was evidence of slight osteoporosis, compatible with her age.

During her hospital course she remained afebrile and responded fairly well to chlorpromazine hydrochloride and intravenous fluids. After several days her nausea ceased and she began to eat again. It was believed that while some liver damage, probably due to portal cirrhosis, was present, her symptoms were severe out of proportion to the findings. At the time of discharge she was much improved.

Again in July, 1956, four days after discharge, she was re-admitted because of severe weakness, vomiting, and diarrhea of 24 hours' duration. There was good response to chlorpromazine and intravenous fluids, and she was discharged the

\*From the Department of Pathology, Methodist Hospital, Memphis, Tenn.

following day with the diagnosis of acute enteritis.

Her next hospitalization was in November, 1957, with acute right lower lumbar pain which she related to twisting her back the day before. She evidently still had variable digestive and urinary complaints. Physical examination, urine, and complete blood counts were within normal limits. Plain film of the abdomen revealed only moderate ileus. Films of the lumbar spine showed moderate generalized deossification, with some marginal lipping about the vertebral bodies. There was partial loss of statue of the 11th thoracic vertebra. She was discharged after one week of symptomatic treatment, improved. Discharge diagnosis was low back strain.

In May, 1958, another complete gastrointestinal series was performed. This time a few diverticula were noted in the sigmoid colon. There was some spasm on the evacuation films in the area of the cecum. Some mucus and fecal material were also present in the cecum.

In July, 1958, she came into the hospital with epigastric pain radiating into the back. There was now no nausea or vomiting. Excepting tenderness over the right upper quadrant and over the lower thoracic spine, physical examination was negative. Urinalysis revealed clumps of bacteria with no other abnormalities in a catheterized specimen. PCV was 44%, WBC count 9,250 with 1% eosinophils, 76% segmented neutrophils, 20% lymphocytes, 8% monocytes. Total serum protein 7.03 Gm. with albumin 4.37 Gm. per 100 cc. and A/G ratio 1.64/1. Alkaline phosphatase was 21.5 Bodansky Units; serum transaminase 83 units. Cephalin cholesterol 2 plus and 3 plus in 24 and 48 hours respectively. BSP. 20.4% retention. Films of the thoracic and lumbar spine demonstrated generalized deossification with an old compression fracture of the 10th thoracic vertebra. Intravenous pyelograms were negative. A cholecystogram revealed faint densities suggestive of gallstones; repeat examination was recommended. After study, she was discharged.

In August, 1958, five weeks later, she returned to the hospital with a history of nausea, vomiting, malaise, epigastric pain, and jaundice which had been progressive over the past 3 weeks. There was now irregular fever, with temperatures of 100-102 F. The liver was palpable approximately 10 cm. below the right costal margin. The lower extremities were slightly edematous. PCV was 43%, WBC count 10,600 with 5% eosinophils; the differential count was otherwise much like that of the previous admission. Total protein 6.3 Gm. with albumin 2.9 Gm. per 100 cc. and A/G ratio of 0.8/1. Serum was bilirubin 5.7 mg. direct, 10.2 mg. total; N.P.N. 45.0 mg. per 100 cc. Prothrombin time: patient 15 seconds, control 13 seconds. PA film of the chest "... elevation and appearance of the right leaf of the diaphragm (which) suggests that there may be some subdiaphragmatic pathology."

Four days after admission, an operation was performed.

DR. J. B. WITHERINGTON: This is the first time that I have ever seen a three page protocol. A person whose symptoms are magnified and distorted by a large functional overlay makes a dangerous patient, for he can develop serious organic disease the same as any other person. Perhaps it is best that he "shop around," and thus get a fresh new work-up periodically.

To begin with, I shall make some remarks about the patient's urinary symptoms. They were apparently all due to lower urinary tract disease (an urethritis and cystitis). Repeated I. V. pyelograms (two or three) were normal. there was no persistent proteinuria and no nitrogen-retention even terminally. Thus, urinary tract disease may be excluded as the source of the patient's chief illness.

At 21 years she had an hysterectomy and reports are made of general osteoporosis even to the point of wedging of T-10. There was much backache and one hospital admission was occasioned by musculoskeletal pain. No mention is made of studies of calcium or phosphorus levels so that I assume that the osteoporosis was not overly premature in this patient, and that a disturbance in the metabolism of these elements was not a part of her major illness. I do not consider plasma cell myeloma likely.

Nonspecific digestive complaints are referred to throughout. They consisted mainly of gas, fullness, nausea, vomiting, and at least on two occasions, diarrhea. Physical findings were negligible until the final admission. One examiner noted a questionable mass in the R.L.A.Q. Finally a large liver, down 10 cm., was felt. I assume that it was smooth for no mention is made of nodules or an irregular surface. There had been evidence of impairment of some of the functions of the liver as far back as two years prior to death, i.e., BSP. retention and cephalin flocculation disturbance. The right diaphragm was elevated on the last admission again indicating liver enlargement. Jaundice had developed and the alkaline phosphatase was enough to suggest post-hepatic obstruction. So the chemical tests suggest a mixture of parenchymal and post-

hepatic icterus. This patient had disease of the liver and perhaps of the biliary tree as well. In addition, the history suggests disease of the gastrointestinal tract despite negative X-rays of the intestinal tube.

Let us consider involvement of the liver-biliary tree. The patient was given Chlorpromazine on two or more occasions, but this was 18 months before the terminal illness, so a hepatitis due to it is unlikely. Amebic hepatitis is mentioned because of an apparent amebic colitis earlier. The absence of a septic course and the description of adequate treatment with subsequent negative stool examination should rule out this possibility. The clinical course is unlike a virus hepatitis. X-ray studies along toward the last suggested the possibility of gall stones, but previous X-ray examination of the gallbladder were negative and there was no colic and no tender gallbladder. Cholecystitis with stones and a common duct stone are possibilities, but I do not believe this could explain the entire picture. A very likely possibility is cirrhosis of the liver complicating a regional enteritis or colitis. The patient had some recurrent diarrhea. A patient with cirrhosis is more prone to primary liver cell cancer than a person with a normal liver. I cannot rule out this combination of gastrointestinal disease with cirrhosis with or without hepatoma. Carcinoma of the head of the pancreas or ampullary cancer are also strong possibilities but neither an epigastric mass nor a dilated gallbladder were ever reported and the back pain was not that of retroperitoneal disease.

Despite the negative G.I. X-ray studies, cancer of the G.I. tract must be considered. There are three radiological blind spots in the gastrointestinal tube: (1) the gastric

fundus, (2) the cecum, especially if there is no barium reflux into the ileum, and (3) the rectosigmoid. If there had been significant anemia, I would be tempted to make a diagnosis of cancer of the cecum with liver metastatic disease. I believe that surely somebody visualized the lower bowel through an endoscope. Gastric fundal cancer cannot be ruled out, but I shall "whistle past it."

Since I have to make a diagnosis, I may as well make a "high toned" one and go down with a loud crash. Vague G.I. symptoms existed for years with some mild diarrhea and then finally the liver enlarged downward and upward, the patient became jaundiced and very ill. No mention is made of episodes of skin flushing and no right sided heart murmurs were recorded. Despite this, I shall offer a diagnosis of carcinoma, probably of the small bowel (ileum) with eventual liver and regional node metastasis producing the large liver and mixed jaundice. This tumor would not be producing the large amounts of serotonin or all of the manifestations of this rare tumor would have been detected.

I suspect that the operative procedure was a needle biopsy of the liver.

*Pathologic Diagnosis.* (Comment after the pathologists report.) We cannot lay much blame on the radiologist for not demonstrating this tumor in the cecum. It did not project as a mass of tissue into the lumen. Unfortunately, X-ray films do not emerge from the machine with a proper diagnostic label attached. We lean too heavily on our X-ray associates. I should have suspected cecal cancer more strongly had there been anemia. Cancer of the cecum is not easy to demonstrate radiologically.



**John Gaston Hospital,  
City of Memphis Hospitals  
Pheochromocytoma\***

*Present Illness:* This 62-year-old white housewife was admitted to the John Gaston Hospital for her first and final admission on January 19, 1951, with the complaint of progressive weakness of one week's duration and anorexia for the past 3 to 4 days. On January 10, 1951, the patient fell against a couch, supposedly suffering a fractured rib on the right side of her chest. X-rays were made by a private physician and her right chest was taped. The patient remained in bed for a week because of this. There were no symptoms referable to the site of injury at the time of admission. There had been no knowledge of weight loss.

Review of systems revealed generalized headaches for the past 10 to 12 years, occurring 1 to 3 times a week and at no certain times of the day. These headaches had been relieved by aspirin. Also there was history of occasional neck stiffness. The patient had had some shortness of breath during the past week on slight exertion. There had been no nocturnal dyspnea or chest pain other than that associated with the rib injury. However, during two or three days of the past week the patient had experienced sudden onsets of palpitation. These episodes terminated suddenly also, and it was said that a drink of water helped them to subside. The patient had an episode of nausea and vomiting on the day of admission. She had had no bowel movement since a few days after Christmas, but it was stated that she usually had had a bowel movement only once every two or three weeks for many years. Her stools were considered normal. The patient had been incontinent since a stroke 10 years previously. She had suffered with stiff joints during the past 10 years and had used a crutch for the past two years because of weakness and a tendency to fall.

*Past History:* All teeth were extracted 12 to 14 years ago. There was a history of hypertension for 15 years. Patient suffered paresis of left arm and left leg when she had her stroke but was said to have recovered their use in a few days. She was treated for ulcerated stomach 8 to 10 years ago when she had nausea and lower abdominal pain. The menstrual history indicated that she was 10 years postmenopausal and had required 10 years to go through the menopause, receiving injections during part of that period. The family history revealed that her father had died from a stroke at age 74.

*Social History:* The patient used no alcohol or tobacco and drank one cup of coffee daily.

*Physical Examination:* B.P. 212/128, right arm; T. 101.8; R. 30; P. 108. The patient was a well

developed, poorly nourished, white woman of advanced age. She was cooperative but slow in answering questions. Head and neck were not remarkable. Pupils were regular and reactive to light and distance. Patient wore only an upper dental plate. Upper gums and palate and pharyngeal mucosa were hyperemic. Retinal arteries were narrowed. Chest was clear and resonant and taped on lower right side. The heart was not remarkable except for tachycardia. Entire abdomen seemed to be filled with masses interpreted by two examiners as feces. The liver, kidney and spleen were not palpable. There was no dependent edema but the right arm appeared larger than the left. Neurologic examination revealed questionable bilateral Babinski signs. Rectal examination was not remarkable. The skin over the sacrum was reddened.

EKG. made January 22, revealed sinus tachycardia and left axis deviation. Roentgenogram of the chest was negative, but abdominal films showed a considerable amount of gas and feces scattered throughout the colon. On one film there was a loop of distended small bowel. Sigmoidoscopic examination to 9 inches was done on January 21, and the findings were recorded as not remarkable. No feces were encountered.

*Laboratory Findings:* January 19, Hematocrit 31%; WBC. count 8,550, with 68% segmented neutrophils, 1% band cells, 1% eosinophils, 26% lymphocytes and 4% monocytes. Erythrocytes appeared normocytic, hypochromic; maximal sedimentation rate was 7 mm. in 15 min.; platelet count 12-15 per oil immersion field. Urine was amber and clear, with sp. gr. 1.017, pH 5.5, 4+ protein and no glucose; centrifuged sediment showed 5-8 WBC/hpf., 0-1 RBC/hpf., numerous coarsely granular casts, and occasional cellular casts and epithelial cells.

January 20: Serum N.P.N., 54 mg., serum chlorides 380 mg. per 100 ml. Total serum proteins 7.3 Gm., with albumin 5.0 and globulin 2.3 Gm. per 100 ml.

January 22: Leukocyte count 13,600. Lumbar puncture: opening pressure 80 mm. saline, closing pressure 45; first tube grossly bloody, others clear; total cell count 248, including 50 leukocytes, of which 64% were polymorphonuclear cells and 36% lymphocytes. Blood Kahn test negative.

January 23: Serum N.P.N. 65 mg./100 ml. Spinal fluid protein 132 mg./100 ml. Spinal fluid culture positive for *Actinomyces*.

*Hospital Course:* On admission the patient was put at complete bedrest and given phenobarbital gr. 1/4 q.i.d., seconal gr. 1 1/2 q.h.s., and penicillin 300,000 units b.i.d. She was given antifebrile measures, including alcohol sponging and aspirin for headache. The rectum was lubricated with 17 instillations of 6-ounce quantities of mineral oil, and 12 soap and water enemas were given during the first three hospital days. Only a few fecal masses were returned. On January 21 a note described continued presence of the abdominal masses. On the day following admission the pa-

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tient's temperature spiked to 103 degrees and her skin became cold and clammy. She developed a tachycardia and was slower in reactions. A positive Babinski sign appeared on the left. Physical examination at this time was otherwise the same as before. The following day she continued to run a febrile course, with pulse and heart rate of 102 and shallow breathing. There was slight tenderness to abdominal palpation and numerous masses were felt. Peristalsis was present. The left patellar reflex was hypoactive. Mottled purplish discoloration of the left foot was noted. Mental cloudiness was increased. There had been slight fluctuation in the hypertension during the previous 24 hours. The next day the patient became cyanotic, with blood pressure of 170/100 and radial pulse rate of 120. She was responsive to questions and in no pain. Biceps and patellar reflexes were absent on the right. Respiration was regular at 16 and mostly abdominal in character. Nasal oxygen was started. Later, caffeine and sodium benzoate gr. 7 1/2, Coramine 2 cc., and Cedilanid 0.8 mgm. were given parenterally. The rectal temperature rose to 106 degrees. Pupils became dilated and no longer reacted to light. Breathing became more labored, with an accumulation of bronchial and tracheal secretions, and the patient expired on the fourth hospital day.

DR. JAMES W. CULBERTSON: Let me select from the protocol those clinical observations which seem to be pertinent to the problem of this patient's final illness. She was a 62-year-old white housewife who had been in her usual state of health until nine days prior to admission to the hospital. That does not imply that the patient had been completely well, but there had been no notable change in her condition. Then she was admitted to the hospital nine days after the onset of her terminal illness, and she died in less than four days after admission. Since the duration of final illness was less than two weeks, we must conclude that her condition deteriorated rapidly; and I suspect that it deteriorated more rapidly than the admitting officer would have predicted at the time she entered the hospital. At the beginning of the record of this last illness the patient fell and injured her chest. It is conceivable that at the time of this fall she could have injured her heart or her aorta in some way that might have led to some serious after effect, which might have contributed to the rest of the story. I think, however, that this is unlikely and I shall choose to interpret her fall as being the result of her malady rather than causative. She could have had a transient dis-

turbance in her cardiac rhythm which might have caused insufficient cerebral blood flow and transient dizziness or fainting which could have led to her fall; or at that moment she might have had some local injury to the brain, such as an embolic or thrombotic vascular accident. In any event, there is a point in time at which there was a definite change in her condition and from that point on, as it turns out, she was in serious difficulty. This view that her fall may have been due to her illness is supported by the fact that, after she had been to her physician and had her chest X-rayed and taped for restriction of movement, she stayed in bed for a week. Such an injury to the chest wall, even with a rib fracture, should not have caused her to stay in bed for so long. Her complaints during this time, moreover, were not related to the chest wall injury but were symptoms of weakness for a week and anorexia for the 3 or 4 days preceding her admission. Since there was no knowledge of weight loss, we may conclude reasonably that this woman had been thin; and it is revealed later that she was a poorly nourished individual. This matter of physical habitus of the patient may be important.

There is a history of generalized headaches approximately 3 times a week over the past 10 or 12 years. Ordinarily one would not pay a great deal of attention to a story of mild headache of this frequency which was relieved easily by aspirin, but it may be that these were headaches of a transient nature which would have been relieved spontaneously even without the aspirin. In the light of other findings this history of periodic headache of a generalized nature, rather than suboccipital or nuchal, may be significant. At the time of admission she gave a history of exertional dyspnea for one week without paroxysmal dyspnea or orthopnea. In the absence of lung disease one must regard this symptom as suggesting the onset of left ventricular decompensation, although of mild degree. Then we come to a point in the story in which the description becomes somewhat more striking. There are accounts of episodic events of sudden onset and rapid termination of attacks of palpitation. With this

information the history of previously sudden headache takes on more significance. There also was an episode of nausea and vomiting on the day of admission, but this nausea and vomiting was not persistent and nonrecurrent, although there had been a previous history of anorexia. There is a rather remarkable history of constipation in this patient, which may or may not be pertinent to our basic problem. Similar complaints in lesser degree are not uncommon in elderly people or in patients with systemic arterial hypertension. The stools were thought to be normal by observation.

The patient gave a history of a stroke 10 years before, thus establishing the presence of systemic arterial disease of an organic nature which would be consistent with arterial hypertension. The old cerebrovascular injury had left a residual incontinence and some weakness which caused the patient to use a crutch later. The need for the crutch probably was increased by her joint trouble. The story that her father died of a stroke suggests a familial tendency toward systemic arterial disease, inasmuch as the patient herself gives a 16-year history of systemic arterial hypertension. When she was treated for ulcerated stomach 10 years before, she was complaining of nausea and lower abdominal pain, which in themselves are not very suggestive of peptic ulcer. It is possible that these abdominal symptoms reported years before may have been due to the same cause as the nausea and the anorexia at the time of this patient's hospital admission. The history reveals that the patient did not use enough alcohol, tobacco or coffee to be taken seriously as a probable cause of the palpitation which she was having, perhaps in association with tachycardia or some abnormality of the cardiac rhythm.

The first item in the record of the physical examination is that the systemic arterial pressure was 212/128. This is the first tangible evidence of serious arterial hypertension, and this must be regarded as the key to the basic disease unless proved otherwise. Granted arterial hypertension in itself is only a sign of disease, this must be explained and must be judged significant. It is likely that her blood pressure had not

run at levels quite so high for the 15 years she had had this abnormality, and the present level of 212/128 probably had been attained during her present illness. We do not have enough observations to let us know whether this hypertension was fluctuating at the time of admission, although we do know that it was sustained later. There were some other interesting observations in the admission examination; namely, temperature 101.8 degrees, respiration 30, pulse 108. These elevations are out of proportion to the other findings in the physical examination and difficult to relate to the possible presence of infection or other abnormality in the urinary tract or in the respiratory system or elsewhere. So one would ask whether this unexpected elevation of temperature, respiration, and pulse along with the elevated blood pressure may not be significant facts. The suggestion of poor nutrition from the history was confirmed on the physical examination. Although the patient was mentally sluggish, she had normal pupils, and we get no help in trying to evaluate or localize a possible cerebral lesion. She wore an upper denture and had no teeth. The hyperemia of her gums and hard palate are not remarkable in the presence of a denture; however, the pharynx is abnormal, and one wonders whether this may provide a source of a complicated respiratory infection. The hyperemia of her palate and gums may indicate the source of the *Actinomyces* which turns up later in the laboratory examination. A significant ophthalmoscopic observation was narrowing of the retinal arteries, and there is no mention of papilledema, hemorrhage, or exudate in the retina. We must take this as evidence against malignant hypertension. The lungs were clear at the time of admission, and no murmurs were heard over the heart. It is important that the only observed cardiac abnormality was tachycardia. Abdominal masses were present, and I believe this finding to be important if these palpable entities cannot be made to move. The liver and kidneys were not felt in this examination, but in a thin woman they should have been accessible if significantly abnormal. Since there was no apparent dependent edema, we are left with only the



historical evidence of mild ventricular decompensation. The chest X-ray on admission was negative and may be taken to indicate that there was no radiographically demonstrable pulmonary edema; also we must presume that the heart shadow was not grossly enlarged on this examination. The neurological findings were bilateral and variable from time to time. They were non-localizing and nonlateralizing, suggesting irritation of both corticospinal tracts without actual paralysis. There is the possibility of a brain stem lesion which, in view of the other findings, might have been in the vicinity of the third ventricle or of the fourth ventricle. I mention this because the presence of a diencephalic lesion could contribute to the maintenance of blood pressure above previous levels, and a lesion in the region of the hypothalamus certainly could contribute to disturbance of the regulation of the visceral functions of temperature, pulse and respiration, as well as blood pressure. The abdominal X-rays are not diagnostic. Possibly there was a mild incomplete small intestinal obstruction, but there was no persistent vomiting and nothing else to support a diagnosis of intestinal obstruction. The protocol records that peristaltic sounds were heard. The sigmoidoscopic findings cast doubt on the accuracy of the history of severe constipation, in that no impaction of feces was found in the rectum, and certainly adequate attempts were made to move the feces which were demonstrated in the colon on X-ray films. Yet the record states that the palpable abdominal masses remained after multiple oil instillations and enemas.

Now I want to call your attention to another episode which happened on the second hospital day. The patient's temperature rose to 103 and she was found to have cold and clammy skin. There was an increase in her degree of tachycardia and an increase in her mental confusion. She continued to run a febrile course with rapid pulse and heart rate and shallow respiration. She had circulatory disturbances in the left foot, which are not diagnostic but which should be taken into account. A slight fluctuation in her degree of arterial hypertension was recognized, but the hyper-

tension was a sustained abnormality. She suffered progressive mental deterioration and she finally became cyanotic. Late in her course the blood pressure fell to 170/100, which may represent actually a mild degree of shock for this patient, as she had had sustained hypertension for a long time. The suspicion that a pressure decline to 170/100 may have been serious for her is enhanced by the fact that at this time her heart rate had risen to 120. Then began frank pulmonary edema, indicating acute left ventricular failure, followed by an episode of hyperpyrexia with temperature up to 106 degrees, dilated pupils and death.

I shall review the laboratory findings only briefly. There was moderate hypochromic anemia, without evidence of sepsis on admission. The urine was consistent with some chronic mild diffuse renal disease, although the 4+ degree of proteinuria was higher than expected. The same can be said for the level of protein in the cerebrospinal fluid which was examined later, but I think that in the case of the cerebrospinal fluid this elevated level of protein may have been accentuated by the low blood pressure during the last day of the patient's life. In shock the spinal fluid protein may rise sharply. The patient had mild nitrogen retention on admission, which was progressive with the development of congestive heart failure but never enough to indicate a fatal uremia; so it probably was prerenal azotemia. It is comforting to know that the total serum proteins and the albumin to globulin ratio were normal. We should note that the leukocyte count did rise to 13,600 as her condition worsened, which may indicate the advent of secondary infection as a complication, possibly in the tracheobronchial tree. Lumbar puncture at the first examination showed normal pressure and there was no evidence of a subarachnoid hemorrhage, which one would be very concerned to know about in this circumstance. There was a mild pleocytosis, with a ratio of 2:1 granulocytes to monocytic cells. However, the total cells were only 248. On the last day the cerebrospinal fluid showed a protein level of 132 mg./100 ml. and a culture positive for *Actinomyces*.

In summary, our diagnostic problem involves a 62-year-old white woman with chronic arterial hypertension. There was a sudden change in her condition shortly before admission to the hospital, with rapid deterioration and with death in 13 days. She developed congestive heart failure and died in pulmonary edema. She had moderate anemia and azotemia was present. There was evidence for organic disease of the brain; symptoms referable to the gastrointestinal tract for many years; a striking history of episodic attacks, especially of palpitation; and elevation of the blood pressure, temperature, heart rate and respiration out of proportion to what one would have expected from the other findings. There was definite variability in these visceral functions. The patient had a febrile illness of fluctuating degree, with mild cerebrospinal fluid pleocytosis, predominately polymorphonuclear. I have set down 8 different diagnostic possibilities, which I shall not discuss in detail; but I shall proceed from the less likely to what I regard as the more likely: (1) The possibility of a meningo-encephalitis, either pyogenic or actinomycotic must be considered. The number of leukocytes in the spinal fluid is not high enough to suggest pyogenic meningitis, nor were the appropriate clinical signs present. Actinomycotic meningo-encephalitis is so very rare that I certainly should not choose that as a diagnosis here and, furthermore, when it occurs it usually does so by extension from a lesion in the anatomic vicinity of the central nervous system; so I think the *Actinomyces* must have been a contaminant. (2) One must mention carcinoid of the small intestine with a possible associated cerebral vascular accident; but this is not the picture of malignant carcinoid, except for the masses in the abdomen, which is not enlarged. There is no dependent edema. Carcinoid does not tend to metastasize to the brain. There were no asthmatic episodes and no murmurs heard over the heart. (3) With abdominal masses, poor nutrition and anemia one must think of abdominal carcinomatosis with cerebral metastasis or vascular accident. I should have expected fluid in the peritoneal sac, which was not present. Moreover, ab-

dominal carcinoma usually does not metastasize to the brain. (4) In a situation of this sort with a multiplicity of findings one must think of subacute bacterial endocarditis with congestive heart failure, but this patient had no embolic phenomena, except perhaps for the possibility of cerebral embolism. Yet we do not have enough positive findings to support a diagnosis of bacterial endocarditis, especially since this heart disease probably is arteriosclerotic and/or hypertensive, and no murmurs were heard. (5) Generalized arteriosclerosis certainly must be considered, with involvement of the brain, heart, kidneys and gastrointestinal tract. In the presence of hypertension in elderly people this can lead to intestinal hemorrhage which may be serious, but this does not explain all of the findings. Likewise, there is the possibility of a silent myocardial infarction without the expected electrocardiographic abnormalities. (6) This leads us to a consideration of idiopathic primary arterial hypertension, with a cerebrovascular accident, with congestive heart failure and with benign nephrosclerosis. Perhaps the counsel of wisdom and a conservative attitude would prompt me to stop at this point. Actually among patients with primary hypertension about 40 per cent die of cerebral vascular accident, another 40 per cent of them die of congestive heart failure, while only about 10 per cent of them die of renal failure. However, we simply do not expect one patient to die with all three of these complications, and this is the disturbing feature of the primary hypertension proposition. (7) With multiple system involvement and with anemia and with hypertension one certainly gives thought to a generalized polyvasculitis. Of the diffuse vascular disorders associated with collagenous degeneration we do not have much evidence for dermatomyositis, obliterating endarteritis or lupus erythematosus. So I should choose as the best prospect from this group of disorders polyarteritis nodosa, with involvement of the brain, heart, kidneys and gastrointestinal tract. However, I do not believe that the clinical picture presented here is especially good for generalized polyarteritis, whereas I believe that it is adequately con-



vincing for another uncommon disease. (8) Therefore, I wish to suggest that this may be a malignant pheochromocytoma with metastases in the abdomen, with cerebral vascular accident in the brain stem resulting in some encephalomalacia (which could explain the cerebrospinal fluid protein elevation and the mild pleocytosis), with congestive heart failure and pulmonary edema, with secondary hypostatic bronchopneumonia, and with benign arteriolar nephrosclerosis and prerenal azotemia. In support of this proposition I wish to say that pheochromocytoma can occur in women of this age, although this is a highly unusual age. The clinical story of pheochromocytoma is typically episodic. Paroxysmal high blood pressure may become sustained at a higher level than it has been averaging previously. Palpitation, weakness, abdominal pain, and mental confusion are common with this chromaffin tumor. The patients tend to have episodes of shock, and they almost always die in left ventricular failure with pulmonary edema. In this group of patients about 15 per cent have cerebrovascular accidents. The tumor can be bilateral in the suprarenal medulla and thus can produce multiple palpable masses in the abdomen, although this is very uncommon. This may be more likely to occur if the tumor is morphologically malignant and metastasizing in the abdomen. One case of metastasis to the brain has been reported.

DR. THOMAS N. STERN: Dr. Cummins, do you care to comment on the etiology of the constipation and the abdominal masses in this patient?

DR. ALVIN J. CUMMINS: I think it is impossible to tell about the etiology of the constipation and abdominal masses from the information that we have here. Simple chronic constipation, scleroderma, amyloidosis, carcinoma or stricture of the colon, uterine leiomyoma, carcinoma of the pancreas involving the celiac plexus, and congenital megacolon are conditions which might play a role in this patient.

DR. STERN: There is one question I should like to ask about the diagnosis before we go on to the pathologic findings. This is a 15-year clinical history. Do you

feel that the diagnosis of malignant disease is compatible with this?

DR. CULBERTSON: Well, in order to make this consistent with the diagnosis of malignant disease, I should have to suggest that the tumor which previously had been morphologically benign had changed recently to become both morphologically and physiologically malignant.

DR. J. ROBERT TEABEAUT: This was a 110-pound body that was examined. I shall give the organ weights first and then show a few sections. The heart weighed 380 grams; it was hypertrophied, in the left ventricle predominantly, and all chambers were described as dilated, particularly those of the right side. The right lung weighed 365 Gm., the left lung 290 Gm.; so you can see there is not much, if any, pulmonary edema or severe congestion of long-standing nature; but there may have been an acute pulmonary edema, as Dr. Culbertson suggested, without significantly increasing the weight of the lungs. These lungs are not heavy at all. As a matter of fact, they were described grossly by two observers as being air-containing throughout. The liver weighed 1400 Gm., the spleen 80 Gm.; neither appeared significant grossly. The right kidney was small at 110 Gm., and contained a few simple retention cysts; the left kidney was 150 Gm. This difference between the two kidneys we will comment on in a moment. Throughout the brain there were multiple small cystic areas, areas of yellow discoloration with cystic centers, suggestive of old hemorrhage into a localized area followed by resolution, liquefaction and formation of cysts. Two larger lesions 2 or 3 mm. in diameter were found in the right and left basal ganglia, and areas of softening or encephalomalacia were found throughout the brain, including the pons. One other thing of note in the brain was the left vertebral artery, which probably was diminutive, though it was described as being entirely absent. The result was that the basilar artery was made up entirely of a large arteriosclerotic right vertebral artery. I suspect that there was a small branch of the left vertebral going into the basilar that was either low down

on the medulla or was destroyed in removing the brain from the skull.

Because of this long standing history of hypertension, I would like to start first by showing a section of the kidney. This is a full thickness of the kidney, and you can see that it is reduced in size. In the cortex there is considerable arteriosclerosis of arcuate-sized vessels, and there is marked arteriolar sclerosis throughout the kidney without significant sclerosis of glomerular vessels; but the arterioles and small arteries in the cortex show a marked degree of hyalinization and loss of integrity of the vessel walls. No hemorrhages were present. There is no protein in Bowman's capsule, but there is a well-established arteriolar nephrosclerosis. In the brain the arteriosclerosis is of the large vessel type, and here you can see the diminution in the size of the lumen, the large atherosclerotic plaques in the intima, and resultant areas of encephalomalacia due to local ischemia scattered throughout the brain. This was the basis of the larger lesions described in both right and left basal ganglia. In this section of left adrenal gland there are thickened arterioles in the periadrenal capsule, and just beneath the capsule is evident smudged pink hyalin material of benign degeneration in the vessel walls. These changes were present throughout the body and extended into all of the tissues. There was a mild degree of acute bronchopneumonia, indicated by these polymorphonuclear cells. Then we go along to the acute terminal pulmonary edema. This pink-staining protein-containing material in the alveoli indicates that the edema was rather acute—a lot of fluid with very little protein coming out. Almost all of these alveoli are filled in part with this pink-staining material. This is an acute pulmonary edema. Notice the hypertrophy of the walls in these pulmonary vessels.

The right adrenal gland was not identified, but in its place was an 810-Gm. tumor mass, which was 15 cm. in diameter. It was composed on cut section of large hemorrhagic cysts and multiple smaller cysts, many of which contained yellow-staining fluid. In its solid state it was a grayish-pink, very soft, succulent tumor with alternating

areas of necrosis and hemorrhage. This tumor was well encapsulated. Here is where Dr. Culbertson made his mistake. He called it a malignant tumor. It is a benign tumor. It is a pheochromocytoma, and I think there are typical patterns here of such a tumor. These tumors, even when they are benign and well-encapsulated, show a very pleomorphic cytologic pattern, with polygonal cells and many bizarre, atypical nuclei. Many of the cells have several nuclei. They really are enlarged syncytial cells. Throughout this tumor, in its well-preserved portions, there are large vessels and septi running through it. This is a typical endocrine pattern. All endocrine glands have this pattern of numerous septi with vessels running through them teleologically so that the internal secretion can be discharged into the blood sinuses. In some areas these are even more prominent than in others. Tumors like this of endocrine origin frequently invade or seed in blood vessels, but this does not indicate a degree of malignancy. It is only when the capsule is invaded and the tumor actually extends beyond that confine that one can say that this is a malignant tumor. Cytologically it looks bad, but it is a benign tumor. Actually most of this structure is just large dilated sinusoids with functional secreting cells about them. Here is an area in which there probably is early infarction. The stuffing of these numerous sinusoids with red cells looks almost like a congestive spleen. Here is another section of this same tumor showing one of these large serous-filled protein-containing cysts. This is the capsule on a portion of this tumor—very thick, not invaded by the tumor. This is all I have to show. That is why I showed the arteriolar sclerosis first.

In summary, here is an example of a pheochromocytoma. Most of these are benign tumors, less than 8 per cent have been malignant. Most of them occur in the 40- to 50-year age range. There is not too much difference in the sex of the patient or the side of involvement. Indeed, in a small percentage of cases both adrenals are involved. These tumors are derived from paraganglionic cells, which are primitive cells that can be found in both the para-

sympathetic and the sympathetic portions of the nervous system. The sympathetic system comprises the paravertebral thoracic and abdominal ganglionic chains, extending downward to the organs of Zuckerkandl and outward into each adrenal medulla. This is where you expect to find the cells of the paraganglionic type containing chromaffin-staining material; that is, when you fix these cells in chromium salts such as dichromates, as in Zenker's solution. These large polygonal cells turn brown with the chromium salt. Some feel the reaction is a nonspecific one between strong oxidants and epinephrine or similar compounds. These granules in the large cells actually are thought by many to be precursors of epinephrine or norepinephrine and, when the brown color is uniform throughout the cytoplasm in the cells, it is postulated that the precursor of the epinephrine-like substance or epinephrine is now mature and has spread into the cytoplasm, ready to be discharged into the large sinusoids adjacent to the cells. Clinical failure to find such a tumor as pheochromocytoma or carcinoma in either adrenal medulla would indicate the desirability of a search in the posterior

mediastinum or in the retroperitoneal tissues down to the bifurcation of the aorta, where a large mass of ganglionic cells is situated. The sympathetic ganglia are composed likewise of cells of the paraganglionic type, which may form benign tumors which are nonfunctional. Such tumors may occur also in the parasympathetic system, on the glossopharyngeal nerve or along the vagus nerve, and they may be found as glomus tumors of the skin or in association with terminal arteries.

DR. CUMMINS: Dr. Teabeaut, I should like to hear about the colon.

DR. TEABEAUT: I am sorry I omitted that, Dr. Cummins. The colon was distended and filled with hard feces, except for the sigmoid segment; and I think it is significant that the sigmoid segment was not apparently distended. In view of these findings and the history, I believe that this may have been a megacolon. Unfortunately, we do not have sections along the sigmoid to show whether motor ganglionic cells were present. The rectum and sigmoid colon were of normal size, but the proximal colon was greatly distended and filled with hard feces.

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#### **Enzyme Tests or Glucose. (Correspondence):**

**Samuel C. Frazer. *Lancet* 1:166, 1958.**

The author reports his experience with the use of enzyme tests for glycosuria. He states that false positive reactions may be obtained when either hydrogen peroxide and hypochlorites are present in the urine. The first is largely of theoretical interest but many household and laboratory cleansers contain hypochlorites and false positive reactions can arise from gross contamination of urine containers. The author states that he is unaware of a false positive enzyme test for glycosuria in an uncontaminated urine specimen, where glucose was proved to be absent by special tests, such as paper chromatography. (Abstracted for the Tennessee Diabetes Association by Charles A. Rosenberg, M.D., Memphis, Tenn.)



## President's Page



JAMES C. GARDNER

An editorial in a statewide publication (Tennessee Farm Bureau News) asked the question, "How close is socialized medicine?"

The editorial went on to answer its own question to the effect that socialized medicine might be near indeed . . . and that doctors themselves might well hasten its arrival by contributing to the increase in the cost of voluntary health insurance, until it is forced to price itself out of the market.

This article appeared not in a publication of any socialistic-oriented group, but in the monthly newspaper of an organization whose interests and philosophy have traditionally closely paralleled those of organized medicine.

It is good that occasionally we attempt a measure of self-appraisal by studying ourselves as we are reflected in the mirror of public opinion.

Organized medicine endorses the voluntary health insurance program as one of the major bulwarks against national compulsory health insurance. As long as the voluntary program works, the bulwark remains sound. But if it becomes too costly for the people whom it seeks to serve, it is no longer effective. It must be supplanted by another method, and the alternative may well be socialized medicine.

At a recent speech before the Association of Life Insurance Medical Directors of America, Dr. Gunnar Gundersen, AMA President, said, "On the matter of costs, perhaps none of us has been entirely blameless, and I include doctors, hospitals, insurers, and patients. The water that has passed over the dam cannot be retrieved, so perhaps it would be best to admit our share of past guilt, then put it aside and proceed to face up to our individual re-

sponsibilities to see that the system of voluntary health insurance works in the best possible manner.

"Now and in the future doctors must especially guard against the abuses of over-prescription, over-utilization and over-charging simply because the patient happens to have insurance protection."

If we accept the contention that doctors must share in the blame for rising costs of health insurance, then we must examine some of the factors involved. One is a misunderstanding of the machinery of health insurance on the part of some doctors. The Tennessee Advisory Committee of the Health Insurance Council, composed of state representatives of commercial underwriters participating in the Tennessee Plan, is attempting an educational program which it has explained to your president and other officers of TSMA. The Council plans to request of county medical societies that an insurance representative be given an opportunity to appear before the society to explain the workings of the health insurance program, and to answer questions. I strongly recommend that when your county society receives such a request it receives favorable consideration.

Another factor may be the pressure exerted on the doctor by the patient who demands that he be admitted to the hospital in order that diagnostic procedures will be compensated for by his insurance. A reasonable patient should be receptive to an explanation of how such tactics lead to higher insurance costs for all.

When and where there are instances of abuses, or professional incompetence by doctors, the medical profession must be willing and ready to discipline its members.

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JANUARY 1959

## EDITORIAL

### ATYPICAL THYROTOXICOSIS

Recently a patient was seen who had an unusual variety of hyperthyroidism: namely, apathetic thyrotoxicosis. He is an elderly man, 73 years old, who for some several months had lost more than seventy pounds. He had no pain, no increased appetite or diarrhea. On the contrary, his appetite had failed. He was found to be horribly undernourished, there was no enlargement of the thyroid, nor were there abnormal eye signs, fever, or enlargement of the liver, spleen or lymph nodes. He was not anemic, and an extensive gastrointestinal study was negative. He had no cardiac enlargement, and although he had atrial fibrillation, his pulse rate was 72, even though he had not been receiving digitalis. The arrhythmia and the profound and unexplained weight loss stimulated investigation of his thyroid function. The metabolism rate was plus 7 per cent, his protein-bound

iodine 12 mcgm., and the radioactive iodine uptake was 74 per cent. Radioactive iodine has been given and a transformation of the patient is anticipated.

The question to be asked is, how often do we now encounter typical hyperthyroidism with a large firm hypervascular gland, exophthalmos, tachycardia and the complete corollary of associated signs of this disorder? Is it not the rule in the recent years to find atypical thyrotoxic syndromes? For years we have known that hyperthyroidism may be disguised as heart disease;<sup>1</sup> osteoporosis;<sup>2</sup> or with marked muscular atrophy suggesting amyotrophic lateral sclerosis;<sup>3</sup> and in others suggestive of the diagnosis of liver disease. Recently the subject has been reviewed by Chapman and Maloof<sup>4</sup> and Wohl and Shuman.<sup>5</sup> Interesting case records are recounted, where, in addition to the above mentioned syndromes, patients presented themselves with the primary complaint of severe abdominal pain, or anemia, or marked peripheral edema, or arthritis, or encephalopathy, or even with convulsive disorders with electroencephalograms suggesting epilepsy. To add to the problem, Werner and Hamilton discuss the problem of hyperthyroidism without apparent hypermetabolism.<sup>6</sup> The differential diagnosis, under this latter circumstance, from neurotic syndromes and neurocirculatory asthenia may tax the clinical acumen of the most experienced clinician. The emphasis on the contrast between the warm wet hands and feet of the hyperthyroid patient and the cold clammy extremities of the psychoneurotic patient, is in our opinion, and experience, quite correct. We are reminded of a previous good report on this general subject by Roger Morris in 1931.<sup>7</sup>

If the clinical investigation requires thought and effort, can one relax in his effort and rely upon the laboratory aides,—namely, the basal metabolic rate, the protein-bound iodine determination, the radioactive iodine uptake, and the serum cholesterol level? The cholesterol level is subject to so many influences and variations that it is of no real diagnostic value except for the changes in the serum level that are observed to occur in the same patient at different times. A recent comparison by Lud-



deske<sup>8</sup> of the three remaining methods suggest a diagnostic reliance of 90% for the basal metabolic rate, 94% for the radioactive iodine uptake procedure, and 97.5% dependency on the protein-bound iodine determination. If it were not for the many current drugs and diagnostic procedures that will cloud this issue, sampling the protein-bound iodine level or determining the radioactive iodine uptake might well completely replace the long-employed basal metabolism machine.

Another point to be kept in mind is the fact that nervous patients generally, and this may include patients with an undiagnosed problem of thyrotoxicosis, are quick to receive, these days and times, one of the various tranquilizer drugs. It is known that the Rauwolfia group may relieve much of the symptomatology of hyperthyroidism without any influence on the protein-bound iodine level or the radioiodine uptake of the thyroid. There is some evidence that even suggests that some of the other tranquilizers may, in addition to an appreciable improvement in the clinical manifestation of the disease, actually decrease the epithyroid uptake of radioactive iodine.<sup>9</sup> There are contrary opinions also published relative to these facts.<sup>10</sup> When there is doubt relative to the diagnosis, it should be remembered that desiccated thyroid and tri-iodothyronine will decrease the radioiodine uptake in euthyroid individuals, but not in the patient with hyperthyroidism. In addition, it may be necessary to compare the total protein-bound iodine level to the inorganic iodine level. In the patient with a toxic thyroid more than 50% of the iodine is in the protein-bound variety.

It becomes clear, as we review this problem, that atypical hyperthyroid syndromes are met with commonly; that they may disguise themselves in many and varied circumstances; that the laboratory diagnosis of the disorder is usually helpful, but may be confusing; and that the careful clinical evaluation of the patient continues to pay fruitful diagnostic dividends, as it has since the earliest days of medical practice.

A. W.

<sup>8</sup>Hamburger, W. W., and Leu, M. W.: Masked Hyperthyroidism, J.A.M.A. 94:250, 1930.

<sup>9</sup>Morgan, H. J., and Williams, Robert: Thyrotoxic Osteoporosis, New Internat. Clin. 2:49, 1940

<sup>10</sup>Morgan, H. J., and Williams, Robert: Muscular Atrophy and Weakness in Thyrotoxicosis, Tr. Am. Clin. & Climatol. A. 55:140, 1939.

<sup>1</sup>Chapman, E. M., and Maloof, F.: Bizarre Clinical Manifestations of Hyperthyroidism, New England J. Med. 254:1, 1956.

<sup>2</sup>Wohl, M. J., and Shuman, C. R.: Atypical Syndromes in Hyperthyroidism, Ann. Int. Med. 46:857, 1957.

<sup>3</sup>Werner, S. C., and Hamilton, H.: Hyperthyroidism without Apparent Hypermetabolism, J.A.M.A. 146:450, 1951.

<sup>4</sup>Morris, R. S.: The "Thyroid Heart" with Low Basal Metabolic Rate, Am. J. M. Sc. 181:297, 1931.

<sup>5</sup>Luddecke, H. F.: Basal Metabolic Rate, Protein Bound Iodine and Radioactive Iodine Uptake; a Comparative Study. Ann. Int. Med. 49:305, 1958.

<sup>6</sup>Friedell, M. T.: Effect of Tranquilizing Agents on Radioactive Iodine Uptake on the Thyroid Gland, J.A.M.A. 167:893, 1958.

<sup>7</sup>Newman, S. and Fish, V. J.: Influence of Tranquilizing Drugs on Results of Thyroid Function Studies, J. Clin. Endocrinol. 18:1296, 1958.

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## SURGICAL TRUSTEESHIP—A MUST!

*This editorial appeared in the "American Surgeon," November, 1958. It has attracted wide recognition and deserves the attention of our own membership, since its author has devoted many hours to certain of the problems facing the Tennessee State Medical Association. (It is reprinted by courtesy of the "American Surgeon.")—Editor*

The insurance buying public and the health insurance companies still have a choice of roads that lead away from governmental control of medicine, but these roads need some medical and surgical safety markers. We should analyze and compromise, where possible, the objections offered by the public, the medical profession, and the insurance companies and make certain that the system of voluntary health insurance continues to grow.

Many working groups would like a "full service" plan to include all medical care with a fixed fee for each service, but, except in localized instances, the cost would be prohibitive on an individual basis. At the other extreme, there is the rapidly growing "major medical comprehensive" coverage which embodies a deductible feature either in dollars and/or percentage shared by the insured and the underwriter. As experience with group coverage of "major medical" increases, individual coverage may soon be obtainable at the same premium rate available now to large groups.



Although the increasing number of insurance forms to be filled in and signed are sometimes irksome, all of us are glad that more and more people have some type of health insurance. Since most families are mainly concerned with hospital, surgical and maternity benefits, we, as surgeons, occupy an important spot in the picture. What are some of our responsibilities? First, we should support full service plans designed for those people who are neither indigent nor affluent. Most states have such a fixed fee for service plans which covers families with incomes up to an average of \$4200 annually. Such plans should be fairly regulated, so that patients with multiple health insurance policies and those whose incomes exceed the maximum limit may expect to pay the surgeon's customary fee instead of the more limited service fee. Many states have optional service benefits to cover in-hospital medical care and the radiologic treatment of malignant lesions. Thus individuals and groups eligible for these lower fees for service can obtain adequate coverage at reasonable cost where some could ill afford the deductible feature of the more complete coverage plans.

"Major Medical" expense insurance is a very rapidly growing eight-year-old, and it should appeal to all physicians and surgeons, because there is no fixed fee for any service. It represents a new concept and a successful effort on the part of the insurance companies to meet the need for protection against large hospital and medical bills of all kinds, including nursing care. The number of people covered by major policies multiplied fourfold in the last two years, and both group and individual policies are available with more companies. The principles of coinsurance and a fixed deductible are a basic part of major medical coverage and permit broad coverage of medical expenses and a high maximum to care for "catastrophic" accidents or illness.

How can we, as surgeons, help these plans grow? We can help educate our patients to the advantages of good policies but, most important, we can help limit the rising costs of medical care by carefully evaluating our services and making a fair and just charge. We should remember that

insurance companies do not create money but rather are trustees for their policyholders and that doctors have a joint trusteeship with the companies. If fees exceed the "usual and customary charge" for that locality, then the premium must be increased and protection would be available to fewer people.

We must protect the vast majority of doctors and patients against the rare patient who urges his doctor to make the charge to the insurance company high enough to include the patient's proper percentage due the doctor.

Much of the controversy over Medicare would be resolved if it could be shown that surgeons can and will limit fees to the "usual and customary" charge for the service rendered. Discussions at local, state and national surgical societies should be helpful in preserving systems in which we believe.

JAMES A. KIRTLEY, JR., M.D.  
Chairman, Prepaid Insurance  
Committee, Tennessee State  
Medical Association  
Nashville, Tennessee

## DEATHS

**Dr. Enoch W. Tipson, Sr.**, 85, Kingsport, died November 9th at his home. He was a pioneer citizen, a civic and church leader of Kingsport.

**Dr. George H. Burkle, Jr.**, 54, Memphis, died on November 18th at his home.

**Dr. Leon I. Runyon**, 49, Obion, died November 9th at his office in Obion.

**Dr. Shields Abernathy**, 73, Memphis, died November 28th at his home as the result of a heart attack.

**Dr. Henry Harrison Herron**, 47, Jackson, died December 6th at his home following a heart attack.

**Dr. John Barclay McGhee**, 85, Chattanooga, died November 5th in a Chattanooga Hospital.

**Dr. Walter Allwein Ruch**, 63, Memphis, died December 6th at the Baptist Hospital.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Chattanooga-Hamilton County Medical Society

The Society's program on December 2nd conducted in the Interstate Building consisted of the following: "Some Uses and Mis-Uses of the Hospital Laboratory" by

Dr. Bruce A. Elrod; "Disease Incidence in People Hired Without Adequate Medical Examinations" by Dr. O. D. Groshart; and a case report by Dr. Guy K. Terrell.

The Society's December 9th meeting was for the election of officers for 1959. Dr. Carl A. Hartung, named president-elect a year ago, assumed the presidency. Dr. Geo. K. Henshall, Jr. was named president-elect to assume the presidency in 1960. By the elections, Dr. Harry A. Stone was re-elected secretary-treasurer; Dr. Marsh Frere was named to the Board of Censors. Dr. Wm. J. Sheridan to the Board of Governors; and Drs. Wayne Gilley, Eugene Ryan and Merton Baker to the House of Delegates. Delegates elected for the Tennessee State Medical Association were Drs. Carl A. Hartung, Geo. K. Henshall, Harry A. Stone, Moore J. Smith, John Higgason, Harold Starr, Wesley Stoneburner and Jack Adams.

### **Memphis-Shelby County Medical Society**

The Society met in regular session on Tuesday, October 7, at the Institute of Pathology. The scientific program consisted of the following: "Practical Uses of Hypothermia in Surgery," Dr. J. J. McCaughan, Jr.; "Management of Spinal Cord Injuries," Dr. Charles Sheibert; "Treatment of the Perforated Peptic Ulcer," Dr. R. F. Bowers.

### **Coffee County Medical Society**

The Society met on November 11th. At the invitation of Dr. C. C. Snoddy of Tullahoma, Mr. R. E. Bacon of the Provident Life & Accident Insurance Company of Chattanooga, was the guest speaker. He discussed health insurance as it relates to the public and to doctors. He distributed copies of the booklet entitled, "Increasing Protection for the American Public." The entire subject of the trend toward government sponsored medical care was discussed by Mr. Bacon with a question and answer period following.

On December 9th, the election of officers was held with the following results. Dr. Howard A. Farrar, Manchester, was elected president, succeeding Dr. James M. King of Tullahoma. Other officers are: Dr. Jack Farrar, Tullahoma, vice president, and Dr. C. H. Webb, Tullahoma, secretary-treasurer.

### **Roane County Medical Society**

The Society's regular monthly meeting was conducted on November 25th in the Oak Ridge Hospital. The scientific program consisted of a discussion of the subject, "The Use and Clinical Application of the Artificial Kidney." Speakers on the subject were Dr. R. J. Leffler and Dr. John W. Avera, both of Knoxville.

### **Sullivan-Johnson County Medical Society**

The Society's monthly meeting was conducted on November 13th at the General Shelby Hotel in Bristol. Dr. Robert Wagner, associate professor of medicine at the School of Medicine, Johns Hopkins University, was the speaker. His subject was "Current Viruses."

### **White County Medical Society**

The Society's monthly meeting was conducted on November 17th in the White County Hospital in Sparta. The Society went on record endorsing the new program of the National Foundation for Infantile Paralysis.

### **Nashville Academy of Medicine and Davidson County Medical Society**

The Society has named Dr. Thomas S. Weaver, Nashville, as president-elect to take office in 1960. He was selected in a mail ballot conducted by the Society. Dr. Douglas Riddell was elected secretary-treasurer. Dr. Walter Dively and Dr. Benjamin Fowler were elected to the Board of Directors for three year terms.

Dr. Rollin A. Daniel, Jr. assumes the presidency for 1959.

Delegates elected to the Tennessee State Medical Association were: Drs. Rollin Daniel, Joseph Anderson, Cloyce Bradley, Thomas Bryan, Laurence Grossman, Joseph Ivey, Oscar Noel, A. B. Scoville, James Thomasson and Thomas Weaver.

### **Knoxville Academy of Medicine**

At the Society's meeting on November 11th, Dr. Charles C. Smeltzer was named president-elect to assume office in 1960. He will succeed Dr. John D. Moore who will serve as president in 1959. Other officers named were Dr. Jack Chesney, vice-president and Dr. Ralph H. Monger re-elected secretary-treasurer.



## NATIONAL NEWS

### The Month in Washington (From the AMA Washington Office)

It is now well-recognized that the new 86th Congress, heavily spiced with newly elected Democratic liberals, will set out to make an impressive record for itself. Health legislation will not be neglected.

On the basis of developments last session, and the known interests of many of the new members of Senate and House, here are the health areas where intensive activity is assured, with prospects for enactment of a number of bills either this year or next year, the final session of the 86th and also a presidential election year:

*Social Security.* Labor has announced that it will work this year for substantial changes in social security, the most important being a program for hospital-nursing home care for the aged and other beneficiaries. On this the unions are supported by the Democratic Advisory Council, which reflects the views of the Truman-Stevenson-Butler element of the party but generally finds itself to the left of Senate Leader Johnson, House Speaker Rayburn and some other Congressional leaders.

Under social security, the AFL-CIO and the Democratic Council also would lower or drop the age 50 requirement for disability payments, increase the OASI taxes, bring more income under the taxes, and raise benefits all up and down the line.

American Medical Association, joined by scores of other associations and individuals in health and other activities, successfully opposed the social security hospitalization plan last session. They are prepared to wage just as determined a fight this year.

*Aid to Medical Schools.* An effort was made in Congress last session to provide grants to medical schools for building and equipping teaching facilities, to complement the research grants program already in effect. While the administration supported the attempt, it did not throw behind it all the energy it is expected to exert this year. Top officials of the Department of Health, Education and Welfare, from Secretary

Flemming on down, have been talking up aid to medical schools all fall. When time comes to testify, they will be strengthened by the activities of a new committee appointed to look into the schools' problems, as well as by the Bayne-Jones report which calls for the immediate start on construction of between 14 and 20 medical schools.

American Medical Association supports construction and equipment grants for medical teaching facilities. Strongest opposition this year is likely to come from some influential members of Congress, who succeeded in bottling up the legislation last session.

*The Keogh bill.* Last session this legislation to permit the self-employed to pay taxes on money withdrawn from retirement funds passed the House but failed to get out of committee in the Senate. Its sponsors, including the AMA, are hopeful that the Senate objections can be removed this year.

*Medicare.* Congressmen already have received protests from back home about restrictions imposed on the civilian phase of Medicare, mostly the channeling of service families to military facilities. This issue is sure to come up when appropriations hearings start on the Defense Department's budget. It may come up sooner, if Medicare runs out of money and requires a deficiency appropriation.

*The Doctor Draft.* The special draft, which hasn't actually been used in two years, may be invoked by the Defense Department this spring, if there isn't a better response on the part of interns and residents to the appeals for volunteers. Should the law have to be used this year, the Defense Department will have a pretty convincing argument that it should be extended beyond its scheduled expiration date of next June 30.

*Medical Research.* While the Federal government currently is spending at a rate of more than \$324 million on medical research through the National Institutes of Health, a still higher record of appropriations is in prospect for next year. The Senate Appropriations Committee has announced that never again will the pace of research be slowed through lack of dollars. This is also the attitude of the AFL-CIO



and the Democratic Advisory Council, among other groups. The pattern usually is for the House to increase moderately Budget Bureau figures for medical research, then for the Senate to vote large additional increases. The House then generally agrees to spend close to what the Senate wants.

*Contributory Health Insurance for Federal Workers.* A new effort to bring about a contributory health insurance program for civilian federal workers is expected, with federal employee unions leading the drive.

*Other Prospects.* A number of amendments will be proposed for the Hill-Burton act. Some effort will be made to strengthen the law under which labor-management health and welfare funds must keep records and file reports. Hospitals are looking forward to low-cost loans under a community facilities bill and nursing homes to mortgage guarantees. The feud over VA's closing of 5,000 beds likely will be renewed.

### Federal Health Spending Up for Fiscal 1958-59

Federal activity in the health field has reached a massive scale, as reported in a special report from the AMA's Washington office. This year, 1958-59 fiscal period, the government is spending 62.6% more than it did five years ago, 13.5% more than last year.

Programs in twenty-two separate agencies and departments of government range from cancer research to federal employees clinics. The total cost is \$2.8 billion, or \$344.7 million more than last year. At the present time, health agencies and the Bureau of the Budget are working on requests to be presented to Congress in January. It is anticipated that these measures will result in setting another new high in government spending.

The AMA report covers the current fiscal year which ends next June 30. For the past six years, the Washington Office has prepared this budget report and chartered the expanding course of federal medical activity.

While nearly 38 million people are eligible to receive all or part of their medical care from or through the Federal Government, medical care represents only a part

of the total spent by the U.S. in medical fields. Many millions go for research, drug control, personnel training and other efforts not directly related to medical care.

### AMA Remodeling Job

Dr. F. J. L. Blasingame, executive vice president, has announced that the American Medical Association, largest medical organization in the world with 171,000 physician members, has contracted for a \$2,000,000 modernization program of its headquarters building at 535 N. Dearborn St., Chicago. The building, on the northeast corner of Dearborn Street and Grand Avenue, is the hub of the AMA's professional and public services and houses a staff of 650.

The contract calls for installation of new lobbies, entrances, air conditioning and automatic elevators, and for complete modernization of all corridors and offices, with dropped acoustic ceilings, fluorescent lighting, new flooring, new walnut paneling and glass partitions. The job will require 24 months and will provide adequate meeting space and restaurant facilities for employees and visiting physician members.

The present structure, including a small auditorium, was completed in 1937, with a six-floor addition made in 1947.

## MEDICAL NEWS IN TENNESSEE

### Hill-Burton Grants in Tennessee

The Department of Health, Education and Welfare reports that as of November 30, there were 89 projects completed and in operation at a total cost of \$67,306,518.00, including a federal contribution of \$25,159,342 and supplying 3,603 additional beds. The announcement stated that 32 projects were under construction at a total cost of \$18,181,495 that will supply 862 additional beds.

Approved, but not yet under construction are ten projects listed at a total cost of \$7,839,811 and will supply an additional 350 beds for the state.

### Poison Control Center Established in Jackson

A poison control center has been established at Jackson to make available prompt

information on treatment of poison cases to doctors and hospitals in 14 West Tennessee counties. The center is located at the Jackson-Madison County General Hospital and has available a listing of more than 15,000 poisonous substances. The Jackson center is one of six in Tennessee and should materially aid in reducing the number of deaths from poisoning in the state.

The Jackson poison control center was developed by a committee of three physicians consisting of Dr. John R. Thompson, Jr., Dr. Thomas K. Ballard and Dr. Stanley Crawford. They represent the State Medical Association, the Tennessee Academy of General Practice and the Tennessee Chapter of the American Academy of Pediatrics, respectively.

### **Memphis Pediatric Society**

Dr. Albert L. Ball was elected president of the Memphis Pediatric Society on December 9th. He succeeded Dr. M. Blake Arnoult. Dr. William D. Mims was named vice-president and Dr. William W. Mason was re-elected secretary-treasurer. Approximately forty members attended the annual banquet and business meeting.

### **Dr. R. H. Hutcheson Re-Appointed**

Governor-Elect Buford Ellington has announced the re-appointment of Dr. R. H. Hutcheson as Tennessee's Public Health Commissioner. He has served in this post since 1943. Dr. Hutcheson is a resident of Franklin and is past president of the southern branch of the American Public Health Association.

### **Memphis Academy of Internal Medicine**

The Society's meeting was conducted on November 28th at the Memphis Country Club where the principal speaker was Dr. George Crile, Jr., of Cleveland, Ohio. Dr. Crile discussed goiters caused by gland failure. Dr. Crile also discussed the thyroid gland in relation to cancer.

### **Martin Health Council**

The Martin Health Council met on November 11th at the Gateway Restaurant where the speaker was Dr. R. B. Turnbull of Memphis. His subject was "Tuberculosis Control in Weakley County." Members and

others interested in the city's health program attended.

### **10,300 Take Knox Diabetes Test**

A total of 10,300 persons in the Knoxville area were tested for diabetes during Diabetes Week, November 16-22, and 88 showed positive test for urine sugar. The report was made by Dr. R. B. Gilbertson, who served as chairman for the program this year. The test included people from industries, students in city and county schools and those who took the tests in physicians' offices or in hospitals.

### **Medical Research Conference**

Leading research men in Veterans Administration Hospitals and medical schools across the nation gathered in Memphis from December 6 through 18 at the Kennedy Veterans Hospital. Some 200 persons attended. Brief talks were given by Dr. William S. Middleton, VA chief medical director; Dr. John B. Barnwell, VA assistant chief medical director for research and education; and Dr. R. Keith Cannan, chairman of the division of medical sciences, National Research Council. All are from Washington. The program was concentrated on disorders of aging, mental illness, cancer, heart and blood vessel disorders, tuberculosis and other lung disease and development of new radioisotope techniques for diagnosis and treatment.

### **Legislative Council Recommends System to Better Detect Murders**

The Legislative Council will recommend a plan to the Legislature to make it harder to commit murder without detection. The Council will recommend setting up a system of county medical examiners and a state medical examiner to determine the causes of mysterious deaths and conduct autopsies.

This step has been supported by the Tennessee State Medical Association. The Public Health Commissioner, after consulting with the Tennessee State Medical Association, would appoint a chief medical examiner. He also would appoint, with advice from local medical societies, a medical examiner for each county. The examiners would be doctors of medicine.

More will be reported on this project when it comes before the Tennessee General Assembly.

### University of Tennessee College of Medicine

A \$69,000 grant has been awarded by the U. S. Public Health Service for the study of ways of altering the course of development of skin cancer in mice. It is for a five-year period.

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Doctors who are graduates from the University of Tennessee Medical Unit in Memphis are practicing in every state in the union except Vermont—and in many foreign countries. The figures show that of the 3,466 physicians in Tennessee, 1600 are U-T graduates.

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The Medical Unit has been awarded a grant of \$325,000 by the research facilities branch of the U. S. Public Health Service to build a new dental and pharmacy research building. The grant is contingent on matching by state funds.

### \$10,000 Given St. Jude Hospital

The first research grant to St. Jude Hospital will enable Memphis specialists to begin immediately studying the causes of leukemia and other childhood diseases. The grant of \$10,000 was made by Plough, Inc. of Memphis to enable research to begin at once in the field of pediatrics hematology and allied blood diseases.

The research will be carried on at the U.T. College of Medicine until such time that the St. Jude Hospital and research facility is completed.

The grant will be to: (1) Develop at Memphis a program for intensive study of leukemia and related diseases. (2) Affiliate the Medical Center with national study groups who are critically evaluating various treatment procedures for leukemia under controlled conditions. (3) Develop special technics in the field of hematology, with particular reference to the field of abnormal bleeding and abnormal clotting. (4) Continue the study of the morphology (size, shape and color) of blood cells from patients with leukemia and related diseases. (5) Train technologists and residents in special

procedures used in hematology so that when St. Jude Hospital is opened there will be a nucleus of staff to draw from. (6) To plan the details of the research laboratories and equipment needed for St. Jude Hospital.

### Vanderbilt University School of Medicine

The National Foundation has granted \$43,790 to the Department of Microbiology, under the direction of Dr. Najjar, for the investigation of certain antibodies appearing in rheumatoid arthritis and allied diseases.

## PERSONAL NEWS

**Dr. A. Brant Lipscomb**, Nashville, announces his return to the Edwards-Eve Clinic, practice limited to orthopedic surgery.

New officers of the medical staff of the Maury County Hospital in Columbia for the year 1959 are: **Dr. Daniel R. Gray, Jr.**, president; **Dr. Carl C. Gardner, Jr.**, vice-president and **Dr. Ambrose M. Langa**, secretary-treasurer. **Dr. D. B. Andrews** is the retiring president.

The following Memphis physicians have moved their offices from 899 Madison Avenue to 20 South Dudley in Memphis: **Drs. S. Fred Strain, R. L. Sanders, L. C. Sanders, Turley Farrar, Robert P. McBurney, James E. Alexander** and **L. K. McCown**.

**Dr. Sheldon B. Korones** has moved his office from 188 S. Bellevue to 4515 Poplar Avenue in Memphis.

**Dr. James G. Hughes**, Memphis, has been named chief of the medical staff at Le Bonheur Children's Hospital. He succeeds **Dr. C. Barton Etter**.

**Dr. Daugh W. Smith**, Nashville, has been re-elected president of the board of trustees of Harpeth Hall girls' school.

**Dr. Aristides Cardona**, Crossville, has been certified as a diplomate of the American Board of Surgery.

**Dr. Frank A. Latham**, Memphis, has been re-elected president of the Gartly-Ramsay Hospital medical staff. **Dr. Dick C. McCool** is the secretary.

**Dr. Augustus McCravey**, Chattanooga, recently spoke before the meeting of the Shrine Luncheon Club.

**Dr. Denvill F. Crowe**, Paris, has been accepted as a member of the American College of Radiology.

**Dr. Samuel Paster**, Memphis, has been named chief of staff at Wallace Hospital. He succeeds **Dr. Justin Adler**.

**Dr. James D. Crutchfield** announces the opening of his office for the practice of medicine in LaFollette.

**Dr. Merlin L. Trumbull**, Memphis, has been re-appointed Chairman of the Executive Committee of the American Society of Clinical Pathologists.



**Dr. D. R. Shipley**, Clarksville, announces the opening of his office for the practice of medicine at New Providence.

**Dr. Martin Davis**, Knoxville, has been elected chief of staff of the University Hospital. **Dr. John Avera**, Knoxville, was elected secretary. The executive committee is composed of **Drs. Richard Willingham, John Kennedy, Harry Jenkins, Sanford Carlson, Victor Klein, H. K. Hicks, A. J. Miller, Cecil Hicks, Francis Jones** and **Carl Nelson**.

**Dr. John F. Mohr**, Knoxville, will take office in January as chief of staff at Children's Hospital. **Dr. Felix Line** was elected vice-chief of staff and **Dr. James Parkall**, secretary.

**Dr. Francis H. Cole**, Memphis, has been elected vice-president of the Southern Thoracic Surgical Association.

**Dr. John B. Youmans**, formerly of Nashville, was recently honored in symposia and a dinner at the Vanderbilt University School of Medicine.

**Dr. Harold Feinstein**, Memphis, president of the staff at St. Joseph Hospital was elected president of the Memphis Obstetrical and Gynecological Society. Other officers are **Dr. H. Glenn Williams**, vice president; **Dr. Charles Riggs**, secretary; and **Dr. Curtis Ogle**, treasurer.

**Dr. A. H. Lancaster**, Knoxville, recently spoke on the subject "Skin Diseases" at a meeting before the Knoxville Bar Association.

**Dr. Lee Roy Barclay** has opened his office for the practice of medicine in Morristown.

**Dr. Richard Willingham**, Knoxville, was a recent speaker before the Sertoma Club.

Paris physicians holding prominent offices in the Henry County Heart Council are **Drs. John Neumann** and **I. H. Jones**.

**Dr. A. R. Kempf**, Springfield, is the new president of the medical staff of the Jesse Jones Hospital in Springfield. **Dr. Robert H. Elder** is vice-president and **Dr. Joe Swann** is secretary-treasurer.

**Dr. Charles A. Mitchell**, Sparta, headed the 1958 Christmas seal campaign in White County.

**Dr. Fred Valentine, Jr.**, Newport, spoke on the subject "Advance in Medicine" before the Clifton Club on November 10th.

**Dr. Amos Christie**, Nashville, has been elected to the American Academy of Pediatrics.

**Dr. Francis Murphey**, Memphis, has been named president-elect of the medical staff at the Baptist Hospital. He will succeed **Dr. Duane Carr** in January 1960. Serving as vice-president of the Baptist staff in 1959 will be **Dr. W. W. Taylor**. **Dr. H. K. Turley** was re-elected secretary.

**Dr. Burgin Wood** has announced the opening of his office for the practice of medicine in La-Follette.

**Dr. J. E. Strickland, Jr.** was the recent speaker on a TV program in Chattanooga sponsored by the Medical Society and Health Council.

**Dr. Barbara Donaldson** has announced that she is in the practice of pediatrics full-time at Townsend.

**Dr. William M. Morse**, Memphis, has been

named secretary-treasurer of the Urological Section of the Southern Medical Association.

**Dr. Spencer Y. Bell**, Knoxville, recently participated in a forum in Kansas City on cancer problems, sponsored by the U.S. Department of Health Education and Welfare.

**Dr. Frank B. O'Connell**, Kingsport, recently spoke on the subject "Diagnosis of Brain Damage by Neurological Examination" at the East Tennessee State College.

**Dr. Harry Stone**, Chattanooga, recently addressed the Woman's Auxiliary of Erlanger Hospital.

**Dr. Ralph Massie**, Nashville, was the featured physician in a recent newspaper article on the subject of diabetes.

**Dr. John B. Steele**, Chattanooga, has been named foreman of the U.S. Grand Jury at Chattanooga.

## BOOK REVIEW

**The Cerebrospinal Fluid. A Ciba Foundation Symposium Edited by S. E. W. Wolstenholme and Cecilia M. O'Connor. 326 pages, with 141 illustrations. Boston. Little, Brown & Co., 1958. Price \$9.00.**

This symposium, held in London in 1957 on the general subject of cerebrospinal fluid, brought together a group of men noted for their contributions on this subject. The papers included in this book deal chiefly with research material which in some form had already appeared elsewhere. Reading, however, is so much easier when the facts are concisely yet completely presented as in this small volume.

In general, the group agrees with Cushing, Dandy, etc. that cerebrospinal fluid is a product of the choroid plexus. The studies employing radioactive isotopes and tissue culture have, however, not shown that cerebrospinal fluid is either excreted or secreted. The interesting fact is that despite all the new techniques the information available really contributes little more than that made much more simply by other generations of scientists.

GUY OWENS, M.D.

**Rypins' Medical Licensure Examinations. By Walter L. Bierring, M.D., with collaboration of a Review Panel. Eighth Edition, 943 pages. Philadelphia: J. B. Lippincott Company, 1957. Price \$10.00.**

As with previous editions this book is designed especially for those preparing for medical qualifying examinations. The text is divided into two parts: Basic sciences and clinical sciences. Following each chapter is a large list of questions which serve as an excellent method of review.

All sections are up to date despite some shortcomings in brevity seen under Medicine and Surgery. As in previous editions, there are no

diagrams and but few tables. The section on psychiatry contains a large glossary of psychiatric terms and little else.

The reviewer actually used this book in preparing for a State Board examination and found it useful.

H. A. BURKE, M.D.

## ANNOUNCEMENTS

### Postgraduate Course in Congenital Heart Disease, Emory University School of Medicine

A postgraduate course in Congenital Heart Disease will be held March 27-29, at Grady Memorial Hospital in Atlanta. The faculty consists of Dr. S. Gilbert Blount, Jr., Associate Professor of Medicine, University of Colorado, Denver; Dr. Richard G. Lester, Assistant Professor of Radiology, University of Minnesota, Minneapolis; Dr. John W. Kirklin, Assistant Professor of Surgery, University of Minnesota Graduate School, Rochester. Members of the faculty of Emory University will also participate. For further information write: Postgraduate Education, 69 Butler Street, S.E., Atlanta 3, Georgia.

### Atlanta Graduate Medical Assembly February 16-18, 1959

This will be held February 16-18 at the Convention Hall of the Atlanta Biltmore Hotel. Fourteen outstanding speakers will present the program. A special feature of the Assembly will be the "Luncheon Conferences" and "Roundtables."

In 1958, over 1600 physicians attended the Assembly. The advanced registration fee is \$15.00. Checks should be addressed to the Atlanta Graduate Medical Assembly, 875 West Peachtree Street, N.E., Atlanta 9, Georgia. The Assembly course is approved for 15 hours of credit in Category I by the AAGP.

### Eleventh Annual Institute in Psychiatry and Neurology

This will be held at the Veterans Administration Hospital, North Little Rock, Arkansas, on February 26-27. Participants in the program are as follows: Dr. Kenneth E. Appel, Ardmore, Pa.; Dr.

Leo H. Bartemeier, Baltimore, Md.; Dr. Dexter M. Bullard, Rockville, Md.; Dr. Frances J. Gerty, Chicago; Dr. Bernard I. Kahn, San Francisco; Dr. Edith M. Lentz, University of Minnesota, Minneapolis; Dr. G. Wilse Robinson, Neurological Institute, Kansas City; Dr. Mathew Ross, Washington, D. C.; and Dr. Stewart Wolf, Oklahoma City.

Dr. Leo H. Bartemeier will present the principal address at the dinner session on February 26th. Special conferences in clinical psychology, psychiatric social work, psychiatric nursing and psychiatric aspects of recreation will be presented.

### American College of Chest Physicians

The Council on Postgraduate Medical Education will present the 12th Annual Postgraduate Course on Diseases of the Chest at the Sheraton Hotel, Philadelphia, March 30-April 3. The most recent advances in the diagnosis and treatment of heart and lung diseases, medical and surgical aspects, will be presented. Tuition for this five-day course will be \$100, including luncheon meetings. For further information write to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

### Physicians Newly Licensed in Tennessee

Mullins, Lawrence D., Nashville  
Walker, Jesse L., Clairfield  
Culbertson, James W., Memphis  
Maloy, Joseph K., Wellesley, Mass.  
Wehs, Richard J., Memphis  
Baranski, Alexander H., Nashville  
Glasscock, Michael E., III, Carthage

### Middle Tennessee Heart Association

A new booklet published by the American Heart Association and now available through the Middle Tennessee Heart Association is entitled "A Safe Work Load for Farmers with Heart Disease." It is a new addition to the Heart Association's series of booklets for patient education.

The booklet classifies the many common jobs on the farm according to the amount of energy each demands. It is written in language that is easily understood by the patient and is designed to help the farmer and his doctor plan together a work routine within the patient's capacities.

You may obtain copies from the Middle Tennessee Heart Association.



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# *Tennessee State Medical Association*

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# 1959

## *Annual Meeting*

MEMPHIS • APRIL 12-15

- ★ General Scientific Meetings • April 13-14-15
- ★ Technical Exhibits • Scientific Exhibits
- ★ Meetings of Specialty Societies • April 13-14-15
- ★ President's Banquet  
Monday, April 13 • Ballroom, Peabody Hotel
- ★ House of Delegates  
Sunday, April 12 • Tuesday, April 14
- ★ Registration Daily  
8:00 a.m. to 5:00 p.m. . . . No Registration Fee

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## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville 5, Tennessee.*

### Locations Wanted

A 37 year old married physician, Church of Christ. Graduate of University of Tennessee. Priority IV. Desires general practice in community over 5,000. Available immediately.

LW-291

A 31 year old married physician, Protestant. Graduate of University of Tennessee. Classification V-A. Desires group or associate practice in general surgery. Now finishing fourth year surgical residency. Available July, 1959.

LW-318

A 37 year old married physician, Protestant, Graduate of University of Nebraska. Desires general practice in small eastern Tennessee community of around 5,000 population. Available July 1, 1959.

LW-321

A 37 year old married physician, Greek Orthodox. Graduate University of Salonkia, Greece. Desires clinical or assistant practice in Pediatrics. Has 2 years pediatrics residency. Available July, 1959.

LW-322

A 29 year old married physician, Methodist. Graduate Emory University. Desires partnership or clinical practice in Pediatrics. Has 2 years pediatrics residency. Available July, 1959.

LW-323

A 35 year old married physician, Methodist. Graduate Washington University, St. Louis. Desires associate Ob-Gyn practice in large community. Has 4 years Ob-Gyn residency. Available July, 1959.

LW-324

A 28 year old married physician, Protestant. Graduate University of Arkansas. On Active Reserve. Desires general practice in West Tennessee community of 10,000-20,000. Available September, 1959.

LW-325

A 35 year old married physician, Methodist. Graduate University of Alabama. Has 2 years general surgery residency. Desires clinical or associate practice in middle or east Tennessee community of 5,000 to 25,000. Available July, 1959.

LW-326

A 23 year old married physician, Protestant. Graduate University of Tennessee. Desires general practice in community of 2,000-5,000 in east Tennessee. Available July, 1959.

LW-327

A 26 year old married physician, Presbyterian. Graduate of University of Tennessee. Priority 4-A. Desires general practice in small east or middle Tennessee community. Available July, 1959.

LW-328

## Physicians Wanted

Community in mid-central Tennessee needs physician to replace present one who is leaving to enter group practice. New clinic, equipped and available at low rent. Good location. PW-89

Large clinic in northwestern Tennessee has opening for Pediatrician with minimum of 2 years residency and 1 year rotating internship. Excellent opportunity in established location. PW-91

Community of 1,200 in southern Tennessee desires physician to replace aging doctor. One other physician in community. Office space and some equipment available. PW-96

Physician in middle Tennessee community of 3,000 offers excellent salary to general practitioner with view toward association. All equipment and office space furnished. Community has hospital. Age 25-35. PW-108

Community of 20,000 in central Tennessee desires physician specializing in EENT and Pediatrics. Community has large hospital and need for physician is great. PW-112

Physician in large west Tennessee community retiring. Wishes to find replacement. Either Ophthalmology or Otolaryngology-ophthalmology. Office space and equipment available. Requires 2 years internship. PW-113

Northeast Tennessee community of 20,000 has great need for Otolaryngologist. Community has 71 bed hospital which will supply equipment for in-patient use. PW-114

Training in Internal Medicine to satisfy Board requirements required of physician for excellent opportunity in Middle Tennessee area with new hospital. County of 25,000 with only 7 other physicians. Office building being completed. PW-115

Middle Tennessee community with new Hill-Burton Hospital and new office facilities built by practicing physician, desires physician with training to satisfy board requirements in Ob-Gyn. Under 40 years of age. PW-117

Physician in large southern Tennessee community desires associate eligible for Board certification in Internal Medicine. Desires sub-specialty in Cardiology. All equipment and office facilities provided. PW-118

Small central Tennessee community desires general practitioner. No other physician. Community will discuss possibilities of building clinic for physician's use. PW-120

Medical clinic in Middle Tennessee desires physician 55-60 to handle emergency room in evenings. Excellent salary. Position ideal for physician retired but desiring some light practice. PW-121

The constant search for new technics and aids for cardiac surgery continue. The authors offer a unique approach which has already been applied with some modifications in certain medical centers in this country.

## A NEW METHOD OF OPEN HEART SURGERY\*

E. CONVERSE PEIRCE, II, M.D., C. HARWELL DABBS, M.D.,  
WILLIAM K. ROGERS, M.D., and FREEMAN L. RAWSON, M.D.,†  
Knoxville, Tenn.

Although much good open heart surgery has been done using equipment or methods that are inherently dangerous, it is now time that we reexamine our approach to this important field and eliminate all equipment and procedures that depend primarily on good luck or on the manual dexterity of the operating surgeon. Highly satisfactory work can be done using well designed pump-lungs that supply the entire basal needs of blood flow of the subject. Unfortunately few centers have such equipment because it is expensive and complicated to run. Many surgeons are still endeavoring to "get by" with lower flows and shorter periods of time despite the inherent dangers of this approach. We have been struck with the marked simplification of the problem that results from decreasing the metabolic needs of the subject by employing refrigeration in conjunction with a heart-lung apparatus.<sup>1</sup> Savings in oxygen-need brought about by cooling are very large as may be seen in figure 1. This makes possible a marked safe reduction in flow rate.

\*Read before the Meeting of the Tennessee Chapter of The American College of Surgeons, April 21, 1958, Gatlinburg, Tenn.

†From the East Tennessee Tuberculosis Hospital and Department of Surgery, Acuff Clinic, Knoxville, Tenn. Supported by U. S. Public Health Service Grant No. H-2315, and the Acuff Clinic Foundation.

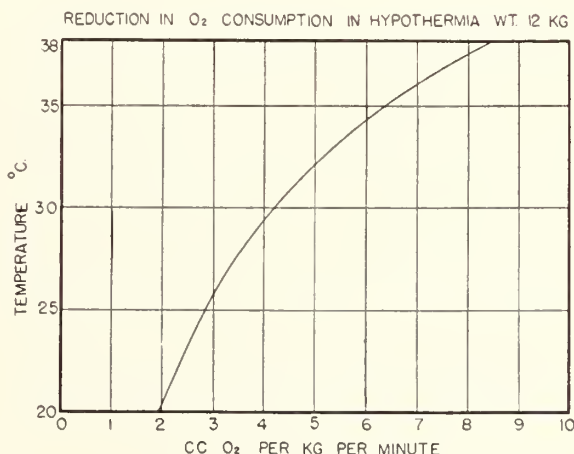


FIG. 1. A composite of data from best available sources. To secure oxygen saving at temperatures near normal, muscular activity, especially shivering, must be controlled with anesthesia, otherwise there may be actually an increase in oxygen consumption.

(Fig. 2.) It is possible to incorporate the cooling into the design of the pump-lung circuit and this does not significantly complicate the apparatus. By directly cooling the blood, organs are cooled in proportion to their blood flow. Organs that have a high blood flow and, therefore, a large need for oxygen receive a much larger volume of cold blood. Consequently, the temperature falls faster in them and a much greater saving in oxygen-need is brought about for a given number of calories than is possible with general cooling of the body or slow

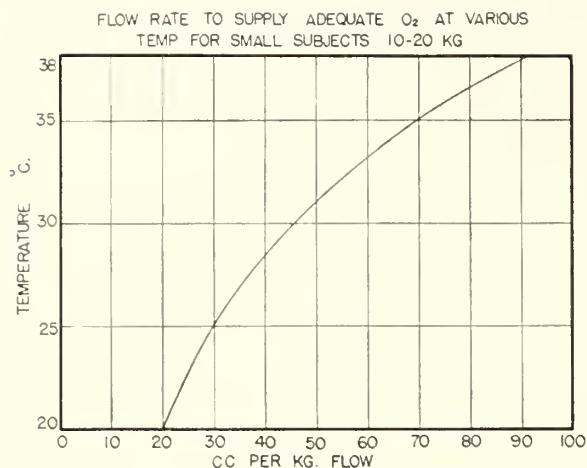


FIG. 2. Survival is possible with flow rates much lower than those indicated. These rates are based on a flow so sufficient that venous oxygen saturation will not be below 50%. This curve is derived from the one in figure 1.

cooling of the blood. (Fig. 3.) Thus, so little cooling is required that the final temperature, after temperatures have equalized throughout the body, is only about 30° C. At this level respiration and circulation are entirely satisfactory without artificial support, and the temperature can be gradually brought to normal by gentle external application of heat. By initiating the cooling at the time the heart and lungs are isolated from the circulation for surgical purposes, one can avoid adding to the length of the anesthesia or of the operation. Use of the low flows, made possible by this method, greatly simplifies the cannulation proce-

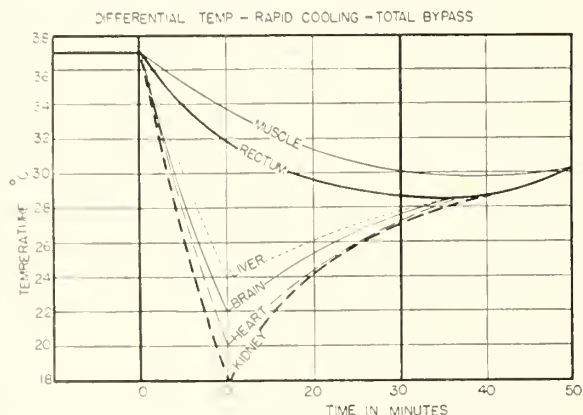


FIG. 3. A 30 minute period of total by-pass is enclosed in the heavy vertical lines. Cooling is carried out for 10 minutes and during the latter 20 minutes of the by-pass there is almost complete equilibration of the divergent temperatures. The total oxygen saving is much greater than would be the case if an equal degree of cooling of a uniform nature were employed. The chart is an approximation of our composite data.

dures, reduces the total blood trauma, and makes possible the use of any good small pump-lung.

Further simplification of the problem caused by direct vision in intra-cardiac surgery can be met by using a pump-lung more nearly approaching the normal lung than those commonly employed. It has been found that oxygen is diffused very readily through thin Teflon membranes.<sup>2</sup> These membranes are very strong and, although the full advantage of the oxygen diffusibility cannot be utilized because of limitations in the diffusion of carbon dioxide,<sup>3</sup> relatively small membranes permit adequate oxygenation when hypothermia is used also. Our membrane lung is modified from one designed by Clowes.<sup>4</sup> The area of membrane required at normal temperature, at 20° C., and by the method we recommend is shown in figure 4. Use of the membrane lung permits elimination of any filter and of all antifoam.

The method here reported has been used so far only in the experimental laboratory, but it is now sufficiently well developed so its clinical application is recommended.\*

#### Method

Lightly anesthetized mongrel dogs, between 10 and 15 kilograms in weight, have been subjected to periods of 30 and 60 minutes of total cardiopulmonary by-pass. In many of them cardiac arrest and intra-cardiac surgery have been carried out. The circuit we employ is shown in figure 5. The flow is preset by means of the arterial pump and, since the oxygenator has a constant volume, no additional regulation is required.

The venous pressure reservoir is connected to the animal after heparinization and its level is then adjusted from time to time to keep the venous pressure constant. This is necessary to compensate for changes in blood volume resulting from variations in flow and loss of blood. After a brief partial by-pass to test the circuit, both vena cavae are occluded and at the same time

\*The membrane lung has been used very successfully clinically for regional perfusion in conjunction with administration of nitrogen mustard. It would appear to be the lung of choice for this work.



## MEMBRANE SIZE REQUIRED USING 0.0005" TEFLON

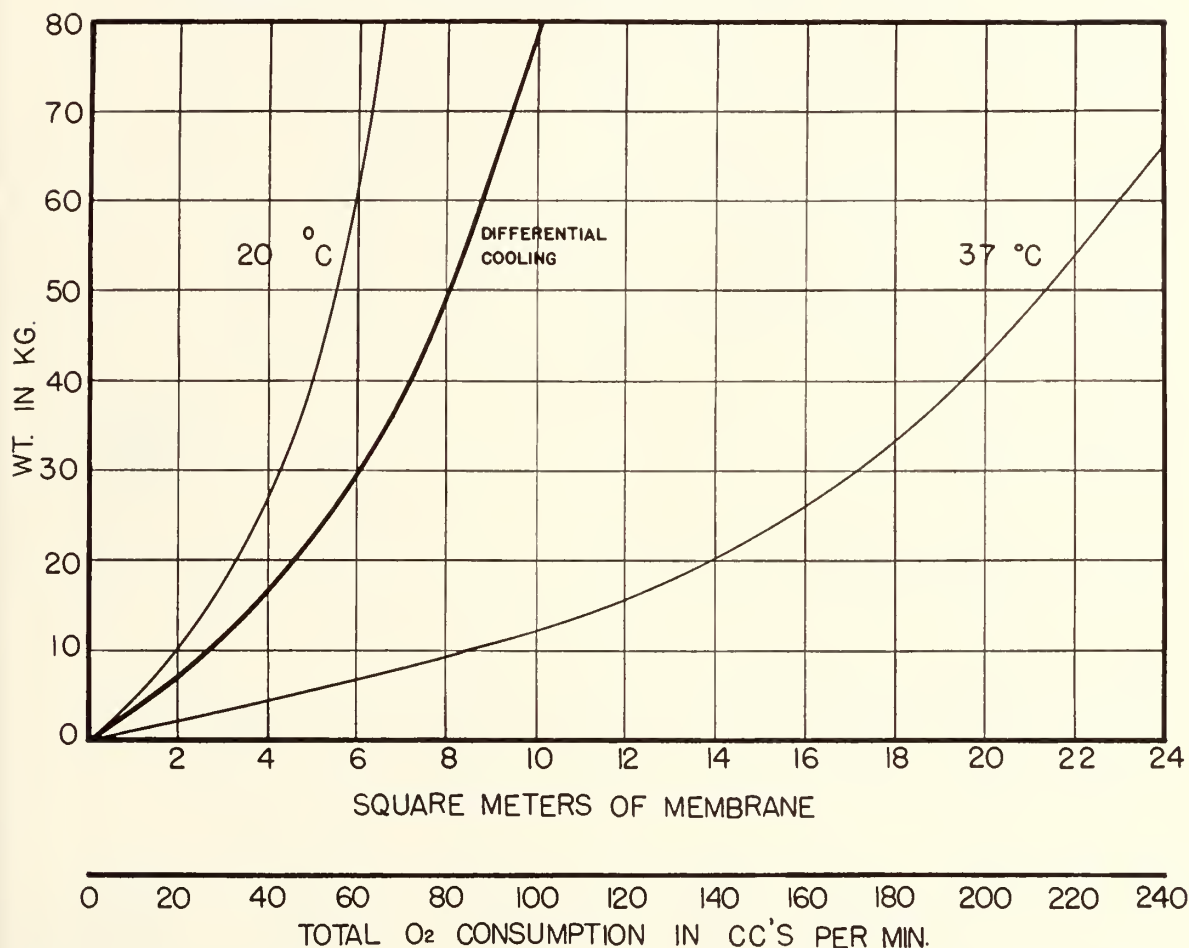


FIG. 4. This chart is based on the area of Teflon required for elimination of carbon dioxide. On the average, 8 cc. of carbon dioxide must be eliminated for every 10 cc. of oxygen taken up. The calculation of carbon dioxide is based on the

assumption that the partial pressure of carbon dioxide should not exceed 50 mm. mercury pressure. Use of this amount of membrane provides considerable reserve of oxygenation.

the heat exchange coil is placed in agitated ice water. We have used a flow of 30 cc. per kilogram and a cooling time of 8 to 10 minutes, the cooling coil then being returned to the temperature of the room. When surgical procedures are done on the heart, the aorta is cross-clamped and a suitable mixture of potassium citrate and magnesium sulfate is quickly injected into the ascending aorta below the clamp. After removing the aortic clamp, partial by-pass is continued until cardiac action is satisfactory. Warming of the blood is not carried out except when the temperature of the room is low and heat loss from this is large.

The usual hematologic and chemical determinations are done in the laboratory. These include measurement of blood gases

by the Van Slyke method and measurement of the pH. We do not feel that it is necessary to measure these in the operating room, since the characteristics of the pumping can be sufficiently well-known so its performance can be predicted. Maintenance of normal venous pressure during the procedure makes it unnecessary to measure blood loss.<sup>5</sup> Any blood withdrawn as samples or lost from bleeding is automatically replaced from the reservoir in the pumping circuit. Generally, the only drugs employed are heparin, protamine, potassium citrate, magnesium sulfate, and penicillin.

#### Results

A typical experiment is illustrated in figure 6. This dog weighed 10.4 kilograms so that a flow of 310 cc. per minute was em-



## MEMBRANE LUNG

TOTAL BYPASS WITH DIFFERENTIAL HYPOTHERMIA - 0.0005" TEFLON  
2.6 METERS<sup>2</sup> - 10.4 KG. - BLOOD FLOW 310cc/MINUTE - 10-9-58

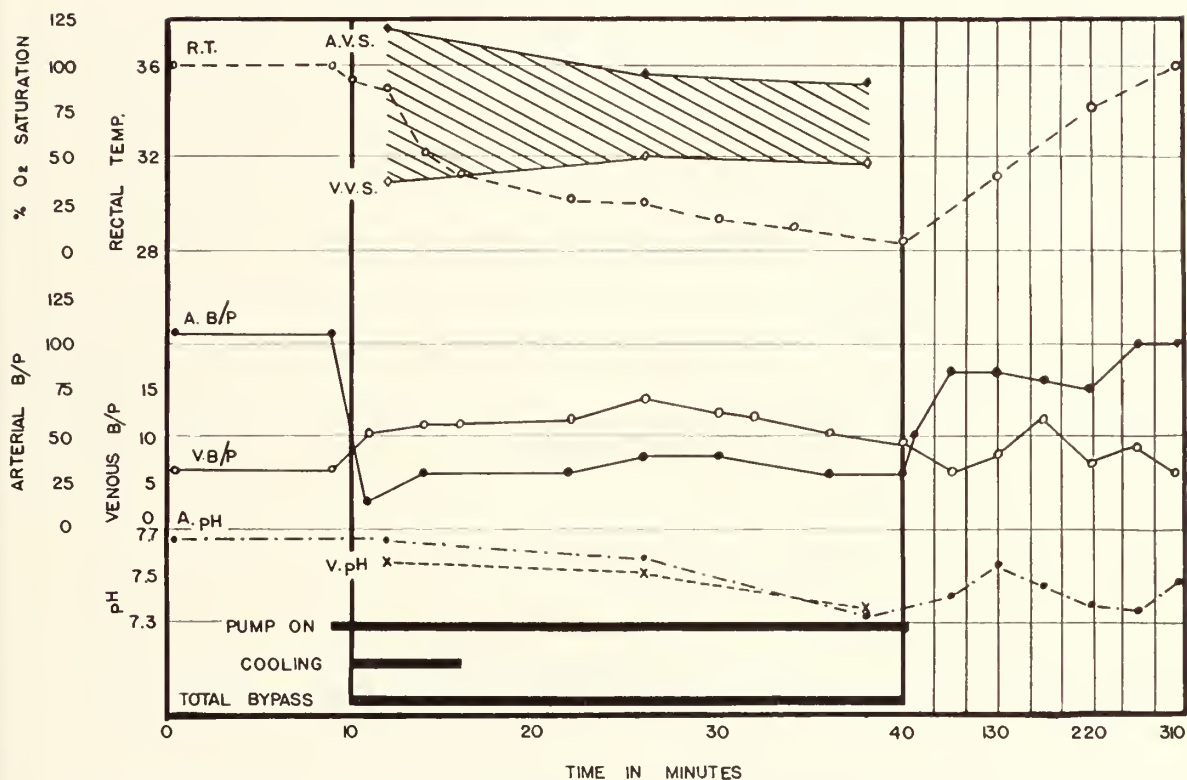


FIG. 6. A typical membrane lung experiment, using differential cooling, is illustrated. The time of by-pass is enclosed in the two heavy vertical lines and lasted 30 minutes. Cooling was carried out for only 7 minutes. Note that the venous oxygen saturation rose during the early part of by-pass and then held relatively level. The arterial and venous pH's were maintained above 7.3. The

relatively high starting pH and the high pH after by-pass are attributable to hyperventilation of the animal on pure oxygen which we now recommend to be avoided by using 3% carbon dioxide instead. Note that the pump is on only a few minutes longer than the time of total by-pass. The entire by-pass time is available for intracardiac surgery.

blood volume has been adequately controlled by simply monitoring the venous pressure. Chemical and hematologic measurements, although showing some change, have remained well within the normal range except for hemolysis. Dog's red cells are extremely fragile and we have not been able to eliminate the considerable hemolysis though have not detected any difficulty caused by it. Recovery of dogs from anesthesia does not appear to be unduly prolonged by the cooling. The animals operated upon may be up and on their feet within a short time of reaching a normal temperature. Emboli, respiratory acidosis, metabolic acidosis, and a tendency to bleed have not been problems with the procedure as reported here. Carbon dioxide retention is a problem if a membrane of inadequate

size is used, although the need for elimination of carbon dioxide is considerably decreased by the cooling.

The overwhelming weight of present evidence is that the cooling process is quite reversible. It permits a safe reduction in oxygen needs with resultant marked simplification of the entire problem of extracorporeal circulation and intracardiac surgery. The possible disadvantages of the method are mainly theoretical and are discussed elsewhere.

## Summary

The use of direct cooling of the blood in conjunction with an artificial heart-lung is recommended as a means of decreasing metabolism and effecting large savings in oxygen needs. The most promising low-flow



lung is one utilizing a Teflon membrane. Very small areas of membrane are sufficient for gas exchange when adequate cooling is utilized. The most efficient use of direct cooling of the blood is realized when it is started simultaneously with the cardiopulmonary by-pass. Not only is the maximum oxygen saving brought about for any given caloric exchange, but it is possible for intracardiac surgery to be performed without increasing the time of operation or anesthesia. The method is explained and illustrated.

### References

1. Peirce, E. C., II, Dabbs, C. H., Rogers, W. K., Rawson, F. L., and Tompkins, R.: Reduced Metabolism by Means of Hypothermia and the Low Flow Pump-oxygenator, *Surg. Gynec. & Obst.* 107:339, 1958.
2. Peirce, E. C., II: Diffusion of Oxygen and Carbon Dioxide Through Teflon Membranes, *Arch. Surg.*, in press.
3. Peirce, E. C., II, and Peirce, G.: The Membrane Oxygenator, Some Factors Influencing Gas Exchange. Submitted for publication.
4. Clowes, G. H. A., Jr., Hopkins, A. L., and Neville, W. E.: The Membrane Oxygenator. Extracorporeal Circulation, 81 (and discussion 121). Springfield, Ill. Charles C. Thomas, 1958.
5. Peirce, E. C., II: Regulation of Blood Volume and Venous Pressure During Partial and Total Cardiopulmonary Bypass, *Tr. Am. Soc. Artificial Internal Organs*. In press.
6. Sealy, W. C., Brown, I. W., Jr., Young, W. G., Jr., Stephen, C. R., Harris, J. S., and Merritt, D.: Hypothermia; Low Flow Extracorporeal Circulation and Controlled Cardiac Arrest for Open Heart Surgery, *Surg. Gynec. & Obst.* 104:441, 1957.

### **Bonding of Fractures by Plastic Adhesives: Bloch, Bernard, J. Bone & Joint Sur. 40-B:804, 1958.**

In this preliminary report encompassing two years, the author began using amine-cured ethoxylated resins as a bonding agent to hold the reduced fracture. The experimental animal used was the sheep and the results have been very satisfactory. The technic has been utilized in two reported patients. One had a long oblique fracture of the shaft of the humerus which had failed to unite in three months; it is interesting that this patient, two weeks after the operation, suffered a second fracture of the same humerus, but at operation it was determined that the second fracture was at a higher level in the bone, which indicates the inherent strength of the plastic material. The second patient had sustained an open fracture of the tibia and fibula which had failed to unite after the insertion of a metal plate and screws. A technic similar to that used in the first patient was utilized and, at the time of the report, the patient was able to walk without any external fixation on the leg. The technic and material used boast a great deal of promise, and we will eagerly await further results of this operative procedure from this enterprising surgeon from Australia. (Abstracted by Thomas F. Parrish, M.D., Nashville.)

The answer to the enigma that is cancer will undoubtedly lie in the biochemical field. This paper ably reviews the trends and knowledge on this subject.

## CHEMOTHERAPEUTIC AGENTS IN THE PALLIATIVE TREATMENT OF CANCER\*

J. D. PIGOTT, M.D., Memphis, Tenn.

At present the diagnosis of leukemia automatically sets the stage for palliative therapy. Unfortunately the majority of patients having visceral cancer eventually become candidates for palliation. Judicious surgery, ionizing radiation (X-rays, Telecobalt, radium, radioisotopes) and the steroids, all have a definite place in relieving symptoms and prolonging comfort in patients so affected. During recent years considerable effort has been expended in developing and testing chemicals which have a cancerocidal effect and some aspects of this modality are to be considered here.

Sometimes all evidence seems to point to incurable cancer but complete investigation reveals a benign, and curable condition. At the outset, then, let us be sure the patient actually has cancer and, secondly, that no surgical or radiotherapeutic procedure will be helpful. The patient and family may be rightly indignant, and the physician be considerably embarrassed should either of these premises subsequently be proved in error. Once a course of palliative therapy is embarked upon the physician-patient relationship is an intimate one. If the physician may be seen as an interested, helpful, healing figure, anxiety may be greatly reduced and therapy approached with greater equanimity.

The future hope for a chemical cure of cancer lies in as yet undiscovered chemotherapeutic agents. A single substance which will specifically inhibit the growth of all cancers and have little or no effect

on normal tissue is not likely to be found, for cancer probably is not one disease but a host of diseases. Literally thousands of compounds have been tested, and many agents found which suppress the growth of tumors, while great numbers have been found to be relatively inactive in this respect. At first rather empirical methods were used in the search but recently some order is evident. While physicists are busily engaged in finding new ways to split the atom, chemotherapists' attention is directed to the basic chemical make-up of the cell, particularly toward the differences between normal and neoplastic cells. The prospect of discovering differences between malignant and normal cells seems alluring but, as often happens, the differences revealed are quantitative only. No substance has been discovered in malignant cells which is entirely absent in their nonmalignant brothers, and *vice versa*. In comparison with normal cells cancer cells are characterized by an intensely active functioning of the system of protein formation. Recent evidence indicates that perhaps nucleic acid, though its metabolism is incompletely understood, may hold the key to future chemical control of cancer. There is considerable practical and experimental evidence favoring this, because nucleic acid construction and metabolism differ somewhat in the normal and cancer cells. In addition, cancer cells usually contain more nucleic acid than do normal ones. Since nucleic acid is so complex, and as it appears that not only do malignant cells metabolize this substance differently, but cells from different locations metabolize it differently also, the difficulty of the problem is obvious.

If, then, nucleic acid metabolism is the

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\*Read in part at a Panel Discussion on the Management of the Patient with Inoperable Cancer, before the meeting of the Tennessee State Medical Association, April 22, 1958, Gatlinburg, Tenn.

target toward which the chemotherapeutic spear should be aimed, what are the sensitive points? According to available evidence purine and pyrimidine bases constitute portions of nucleic acid. Obviously, interference with either of these compounds might be productive of enough alteration in nucleic acid metabolism that rapid reproduction of cells would be inhibited. This concept opened the way for the use of chemical antagonists. Crudely expressed, a chemical antagonist so closely resembles a useful substance that it is accepted by the cells, and by taking the place of the useful ones partially blocks some essential, vital process.

In the first place purine is utilized by some dividing cells to manufacture in some way nucleic acid. This has been proved by administration of purines tagged with radioisotopes. Similarly, modified or "abnormal" purines have been proved to have specific properties of suppressing tumor, presumably due to interference with nucleic acid metabolism and thus with the formation of new cells.

Secondly, nucleic acid may be synthesized by dividing cells from simple precursors such as carbon and nitrogen compound. Folic acid normally catalyzes this process and agents which interfere with this anabolic phenomenon, the folic acid antagonists, have been demonstrated to be chemotherapeutic in some instances.

Unfortunately, beneficial effects of these compounds are temporary due to the extraordinary adaptability of cancer cells. There has been considerable speculation upon why cancer cells become resistant to the agents which at first have appeared to be beneficial. Perhaps the malignant cells alter their manner of life somehow and adapt themselves to repeated chemical injuries which, to begin with were lethal. Accepting the importance of nucleic acid in cell reproduction, it would appear that there are other pathways for nucleic acid synthesis by the cell. Experimental evidence supports this view for it has been chemically substantiated that nucleic acid is not the identical compound in different cells, nor are its requirements for cell reproduction the same in cells from different sources. It is not extravagant then to hope that one or

more additional pathways for nucleic acid metabolism may be found, and be selectively interfered with so the feeble and transient effect presently obtainable with known agents may be extended to actual chemical cure of cancer.

### Chemotherapeutic Agents

(1) *Purine Antagonists.* Purine and pyrimidine are preformed constituents incorporated into nucleic acid by the cell. Certain "abnormal" purines have been synthesized which, when administered, may be incorporated into the cell via nucleic acid metabolism and selectively damage the cell containing relatively large amounts. 6-mercaptopurine (6 MP), 6 thioguanine (6 TG), and 6 chloropurine (6 CP) may be useful.

*6-mercaptopurine.* The dose is generally 2.5 to 6 mg. per kilogram of body weight, given orally once daily for prolonged periods of time. Several weeks of therapy are required for a noticeable effect to be evident; maintenance doses of 1.5 to 2.5 mg. per day should be continued.

*Indications:* In acute leukemias the most gratifying responses are observed, for about one-third of children so affected will have a remission and is the most effective therapeutic modality for adults. It is of definite benefit also in chronic leukemia.

*6 TG and 6 CP* are used in daily oral doses of 2 to 2.5 mg. per kilogram and 20 mg. per kilogram respectively and have about the same usefulness as 6 mercaptopurine.

(2) *Folic Acid Antagonists.* When this vitamin is withdrawn or a compound with antifolic activity is administered, nucleic acid synthesis is seriously impaired. The most useful antifolic acid agents available today are aminopterin, amethopterin and adenopterin.

*Amethopterin* (Methotrexate) is the easiest to use. The initial dose in adults is 5 mg. daily, gradually increasing over a period of 5 to 6 weeks to 10 mg. daily depending upon the response. This has proved beneficial in some of those patients initially responsive to 6 MP and who have relapsed during therapy. Recent reports suggest a peculiarly gratifying response in chorion-epithelioma.



Indications: The acute leukemias and chorionepithelioma.

(3) *Other Antimetabolites.*

Azaserine has been discovered to possess inhibitory activity against certain experimental animal tumors.<sup>1</sup> Subsequently it was found that azaserine selectively inhibits, in some way, the *de novo* synthesis of purines and therefore is somewhat related to the folic acid antagonists.

Other avenues being pursued are investigation of glutamine and pyrimidine antagonists and the possibility of riboflavin antagonism, since all these relate to nucleic acid metabolism.

(4) *Alkylating Agents.*

Some of the most valuable agents now available are nitrogen mustard and its related compounds. The mechanism of action of these compounds is destruction of nucleic acid by the process of alkylation producing an effect similar to that of ionizing radiation. These compounds are cytotoxins and selectively destroy already formed nucleic acid.

Nitrogen mustard is the best known and was the first chemotherapeutic substance to be used clinically. Credit for this specific discovery rightly belongs to Goodman and Gilman who, in 1942, while investigating the pharmacology of certain nitrogen mustard derivatives observed the effect upon lymphoid tissue and rapidly dividing cells, although Ehrlich, in 1898, recognized some of the unique biologic features of certain alkylating agents. Related compounds shown to be clinically useful are triethylene melamine (TEM), triethylene phosphoramide (TEPA), triethylenethiophosphoramide (Thio-TEPA, TSPA), Myleran, Leukeran (CB-1348, Chlorambucil) and others.

(a) *Nitrogen Mustard.* The usual dose is 0.4 mg. per kilogram of body weight administered intravenously in 3 or 4 divided daily doses. It may also be given intrapleurally, intraperitoneally, or intra-arterially in similar or smaller doses.

Indications: Hodgkins disease, lymphosarcoma and reticulum cell sarcoma, chronic myelogenous Leukemia, carcinoma of the lung, metastatic carcinoma in pleural or peritoneal cavities, and far advanced cancer.

(b) *TEM.* The dose is usually considered to be 10 mg. in a period of 4 days adminis-

tered orally. It may also be given on a "maintenance" basis.

Indications are similar to those of nitrogen mustard.

(c) *Thio-TEPA (TSPA)* Usually 0.9 mg. per kilogram intravenously, or from 100 to 200 mg. in a 30 day period orally.

Indications are far advanced carcinoma of the breast, ovary, etc., and in certain leukemias.

(d) *Leukeran* may also be given orally in the dose of 0.2 mg. per kilogram daily for 20 to 40 days.

Indications are similar to those of nitrogen mustard. It is probably the best oral preparation in this group.

*Precautions.* It has been inferred previously that these agents have little actual selectivity of action, being concentrated wherever nucleic acid is being formed or exists in abundance. Considerable activity of new cell formation is characteristic of bone marrow and all of these agents possess the capacity to inflict permanent bone marrow damage. As each patient's tolerance to them is variable, peripheral blood studies, especially leukocyte and platelet counts, and sometimes bone marrow biopsies, should be done frequently. In some neoplastic conditions little benefit can be expected until relatively severe bone marrow depression is produced, so extreme caution should be exercised when chemotherapeutic agents are used. These drugs should be used only in the most urgent of clinical circumstances if there is a leukopenia of below 3000, thrombocytopenia of below 50,000, a hypocellular bone marrow or an elevated E.U.N. When leukopenia exists antibiotics should be given.

#### Specific Indications for Chemotherapeutic Drugs

(1) *Lymphomas.*

(a) *Hodgkins disease of disseminated type.* Nitrogen mustard is the preferred compound administered intravenously in three or four daily doses. Should remission occur, subsequent relapses may be retreated with HN<sub>2</sub> with generally decreasing effectiveness. Other measures, such as radiation therapy and paracentesis should not be neglected when indicated. Oral preparation such as TEM and Leukeran are also helpful.

(b) *Lymphosarcoma*. Radiation therapy is generally most helpful particularly when disease is limited to a group of nodes or region, but in the patient with generalized lymphosarcoma or reticulum cell sarcoma nitrogen mustard and TEM may be of benefit. In addition, a preliminary dose or course of mustard is sometimes helpful before radiation is given to partly nullify the edema producing effects of X-ray therapy in certain situations, as impending obstructions to the superior vena cava or impending paralysis due to infiltration of the spinal cord. When the lymphosarcoma is particularly sensitive, increased blood uric acid may make rapid alkalization of the patient mandatory to prevent hyperuricemic uropathy and rapid death.

(c) *The Acute Leukemias*. In addition to the usually indicated supportive measures and the use of steroids in children, certain chemotherapeutic agents produce favorable effects.

*The purine antagonists* notably 6 MP, 6 TG, 6 CP, have caused relatively long remissions not only in children but in adults, where previously agents were not generally effective. The starting dose of mercaptopurine is 2.5 mg. per kilogram per day gradually increasing to 5 to 6 mg. per kilogram per day depending upon the response, and then decreasing the dose after desired effect is produced. Remissions thus obtained have lasted up to one year, though 2 to 6 months is a more realistic prognostic figure.

*Folic Acid Antagonists*. Amethopterin may be used as the initial form of therapy and about 30 to 50% of children respond favorably to this agent. In addition it may be used in adults who have had relapses following mercaptopurine therapy with occasional gratifying results.

(d) *Chronic Leukemias*. Chronic myelogenous leukemia may be benefitted by nitrogen mustard and its related compounds. Apparently Myleran has its only therapeutic use in this condition. Lymphatic leukemia may also respond to nitrogen mustard and in the occasional case surprisingly so. TEM, Leukeran or Thio-TEPA. (TSPA) may be helpful in both these conditions.

(2) *Multiple Myeloma*. The "antagonists" may be of some use in this condition and

Urethane is said to benefit about 25% of patients so affected.

(3) *Mycosis Fungoides and Polycythemia Vera* have responded favorably to the alkylating agents in therapeutic doses.

(4) *Bronchogenic carcinoma* has been treated for several years with nitrogen mustard and about one-half of the patients are benefitted by this therapy. Other alkylating agents are promising.

(5) Chemotherapy for generalized carcinoma, administered systemically, is generally disappointing, although the occasional patient will benefit remarkably. Widespread cancer arising in breast, ovary, uterus, soft tissue, and other locations have been successfully treated. The intent, when treating patients such as these, is to provide palliation, i.e., prolongation of comfort and of useful life. Frequently these aims are not fulfilled and the physician, the patient's family and often the patient himself should be prepared to accept this fact.

#### Methods of Administration

*Oral administration*, if practical, is the simplest mode of therapy. Fortunately most agents may be given in this fashion with a minimum of gastrointestinal upset viz.,—6 MP, Amethopterin, TEM, Thio-TEPA, Myleran, Leukeran and others.

*Intravenous*. Therapeutic doses of several chemotherapeutic drugs may be given in this fashion. Nitrogen mustard, TEM, Thio-TEPA and the sodium salt of Leukeran are soluble substances and may be given intravenously. Nitrogen mustard may also be given via the portal vein during laparotomy.

*Intrapleural*. When metastatic carcinoma, due to any primary cancer, causes pleural effusion chemotherapeutic agents may be useful. Nitrogen mustard in therapeutic doses may be instilled into the pleural space after withdrawing fluid. Depending upon the general condition of the patient 0.1 mg. per kilogram is injected daily for from 1 to 4 days. A high percentage of patients will cease to manufacture pleural fluid after such a regimen. This percentage may be improved by "combined" therapy using HN<sub>2</sub> and radioactive gold at the same time. Thio-TEPA promises to be about as effective as mustard.

*Intraperitoneal*. Nitrogen mustard may

be introduced into the peritoneal space following surgery in about 200 cc. saline solution to prevent peritoneal "seeding" during major intra-abdominal cancer surgery. When "malignant" ascites develops paracentesis may be followed by intraperitoneal injection of similar doses of  $\text{HN}_2$  to attempt to prevent reaccumulation of fluid. Results with this procedure have not been so productive as intrapleural injection. When either of these intracavitary methods are used it must be remembered that absorption is rapid and that a generalized effect is produced.

*Intra-arterial.* Klopp<sup>2</sup> in 1950, and Bierman<sup>3</sup> in 1951, first reported intra-arterial injection of chemotherapeutic drugs. Recently Creech<sup>4</sup> has advocated this method for certain highly selected patients with incurable cancer apparently limited to one of the limbs. Relatively larger doses may be given to a tumor in an extremity with a minimum of spread of the agent to the general circulation using an oxygenator pump system. Obviously, indications for this method of therapy are limited, for implied is limitation of the disease to an extremity or area which could be surgically removed.

*Interstitial.* The highly soluble alkylating agents TEM and Thio-TEPA are said to be helpful in certain cases of discrete metastatic or primary lesions when interstitially injected. If the lesion is not removable di-

rect injection of the agent in small doses directly into the tumor may cause temporary regression or actual disappearance.

### Conclusion

Chemotherapeutic agents now available or soon to be available have been discussed. Their probable action, their doses, indications and modes of therapy have been mentioned. No chemical anticancer agent has been productive of actual cure in man unless it be chorionepithelioma by amethopterin. The effects of available drugs are feeble, they are transient but responses do occur. Because several types of transplantable cancer in animals can be wholly destroyed by systematic systemic chemotherapy use of available chemicals and search for new ones is commended.

### References

1. Sternberg, S. S., et al.: Azaserine, Pathological and Pharmacological Studies, *Cancer* 10:889, 1957.
2. Klopp, C. T., et al: Fractionated Intra-arterial Cancer Chemotherapy with Methylbis-amine Hydrochloride; A Preliminary Report, *Ann. Surg.* 132:811, 1950.
3. Bierman, H. R., et al: Studies on the Blood Supply of Tumors in Man. II. Intraarterial Nitrogen Mustard Therapy of Cutaneous Lesions, *J. Nat. Cancer Inst.* 11:891, 1951.
4. Ryan, R. F., Krementz, E. T., Creech, Oscar J., Winblad, J.M., Chamblee, W., and Cheek, H.: Selected Perfusion of Isolated Viscera with Chemotherapeutic Agents Using an Extracorporeal Circuit, *Surg. Forum* 8:158, 1957.

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#### **Treatment by Bone-Grafting of Aseptic Necrosis of the Femoral Head and Nonunion of the Femoral Neck (Phemister Technique): Bonfiglio, Michael, and Bardenstein, Maxwell B., *J. Bone & Joint Surg.* 40-A:1329, 1958.**

Fifty-three patients with aseptic necrosis of the femoral head with or without nonunion of the fracture of the femoral neck, are reported in which the complications of avascular necrosis with or without nonunion were treated by tibial cortical graft being placed in the superior anterior quadrant of the femoral head. Steinman pins were also used to stabilize the fragments in which nonunion was present. Seventy-five per cent of the 53 patients operated on by this method exhibited satisfactory results which indicates the great value of this procedure. (Abstracted by Thomas F. Parrish, M.D., Nashville.)



This condition remains a most troublesome one to control. The various features in diagnosis are considered as well as its management.

## CARDIOSPASM\*

SHELDON E. DOMM, M.D., DAVID H. WATERMAN, M.D., and  
WILLIAM K. ROGERS, M.D., Knoxville, Tenn.

All of us who do chest work are familiar with the patient, invariably unhappy, who confronts his physician with the complaint of food and drink stopping in the lower chest. Whether one considers this condition to be overactivity of an alleged circular muscle sphincter at the cardia or its failure to relax properly is, we believe, of no great concern to any of us here today, although much heat has been generated by this controversy.

### Etiology and Pathology

We will not go into the interesting mystery of why the intrinsic neural mechanism of the smooth muscle (Auerbach's myenteric plexus) of the entire esophagus shows more or less degeneration, as manifested by inadequate peristalsis, except to say that achalasia is *not* a psychogenic condition. Likewise we will not dwell on the relationship between cardiospasm and megaesophagus which may or may not be associated with it.

### Diagnosis

The presence of cardiospasm should be suspected in any patient complaining of trouble in swallowing, even though the symptom may have been attributed to "nerves" and is certainly made worse by nervous tension. A history of regurgitation, but not vomiting, is suggestive. It has been taught that in cardiospasm the sequence of dysphagia is such that the patient first notices inability to swallow liquids whereas solids pass relatively well. On the contrary, in carcinoma of the esophagus the patient notes difficulty in swallowing solids although liquids pass freely at first. This didactic distinction is of some value, but it

is well to reflect that in many instances the patient with cardiospasm comes to the physician with an esophagus so effectively plugged with food that he has what amounts to an organic block in addition to the so-called functional obstruction. In this connection it may be said that cardiospasm should always be suspected in any case of a foreign body in the esophagus. Likewise it is well to remember that cardiospasm and cancer can coexist and that cardiospasm frequently accompanies esophageal hiatus hernia.

It is of some interest that often the patient suffering from achalasia loses little or no weight, whereas the patient having carcinoma usually does lose weight.

Fluoroscopy at barium swallow is a definitive test of achalasia and usually shows the four classical signs: (1) barium retention of some degree, (2) an abnormal wave pattern, (3) more or less dilatation, and (4) smooth concentric terminal contraction.

X-ray studies with barium swallow tend to confirm the impression gained at fluoroscopy; one should never rely wholly on the impression at fluoroscopy, either one's own or that of someone else. It is also well to bear in mind that inspissated food in cases of achalasia can cause an X-ray picture indistinguishable from carcinoma, and may give the impression of a higher degree of block than that caused by cardiospasm alone. It should be recalled that in mild cases of achalasia the roentgen findings may be minimal at the time of the examination.

We would like, at this juncture, to urge the use of 14 by 17 inch films (P. A., lateral and oblique) in the upright position rather than the miniature spot films so desirable to roentgenologists, since they leave something to be desired insofar as orientation is concerned.

\*Read at the Meeting of the Tennessee Thoracic Society, April 21, 1958, Gatlinburg, Tenn.

The determination of intra-esophageal pressures by the balloon kymograph, by Kramer and Ingelfinger,<sup>1</sup> and Olsen *et al.*,<sup>2</sup> may also be called a definitive test of achalasia. Decreased tone, deficient propulsion, irregular phasic activity and consistently elevated pressures are noted in achalasia. These elevated pressures are lowered by treatment.

Another test considered to be definitive is the *Mecholyl test* of Kramer and Ingelfinger.<sup>3</sup> In this test 6 mg. of Mecholyl administered intramuscularly will cause tetanic obliteration of the lumen of the esophagus in cases of cardiospasm but in no others.

The final routine diagnostic procedure, however, is esophagoscopy, and we believe mechanical treatment or surgery should never be used until satisfactory esophagoscopy has been done. Esophagoscopy is done either under topical or general anesthesia as the patient prefers. The findings in achalasia may be essentially negative. In other instances the endoscopist can actually see the cardia contracting in an over-active way. (Those who deny the existence of a sphincter at the cardia, and those who claim if there is a sphincter it cannot show spasm will of course challenge this statement.) In other cases it is impossible to pass the esophagoscope into the stomach. This situation would bring to mind the possibility of the presence of stricture or extrinsic compression in addition to spasm—a matter of importance inasmuch as fibrous stricture and extrinsic compression respond poorly if at all to dilatation.

### Treatment

Inasmuch as the fundamental dysfunction of the esophagus (which we will refer to as cardiospasm or achalasia or dystonia in order to offend no one) is poorly understood, its cause quite unknown, and treatment is therefore empiric. Furthermore, no treatment available today has any apparent tendency to restore esophageal motility. Fortunately, however, insofar as the patient is concerned this is a matter of no great importance; the important point is a practical one. That is to say his symptoms can be relieved by simple, safe, and standard-

ized mechanical treatment generally available.

The first step in treatment, in our opinion, is obtaining good X-ray studies, as described previously. With these 14 by 17 inch films at hand, esophagoscopy is done. The esophageal contents, which at times are astonishingly massive and remarkably odoriferous, are aspirated. Great care is taken to identify and remove foreign bodies, notably items of food or undigestible objects such as fruit seeds or cellulose fibers. We believe that foreign bodies, too large to pass, pressing against the reluctant cardia constitute a noxious stimulus accentuating the achalasia.

When the cardia is clearly visualized, an attempt is made to pass the esophagoscope into the stomach. If this maneuver is possible the oval esophagoscope is rotated and slowly withdrawn upward through the cardia, thereby accomplishing definite dilatation. If it is not possible to enter the stomach with the esophagoscope, bouginage is done as feasible. Our experience suggests that the prognosis is significantly better in those cases in which the esophagoscope can and does go through the cardia. As a matter of fact, in certain cases this simple procedure constitutes for practical purposes a "cure," the patient seemingly being relieved of his symptoms indefinitely. In megaesophagus and long standing cardiospasm it may not be possible to see the esophago-cardiac junction.

Usually the symptoms recur after esophagoscopy, and a program of bouginage is undertaken in the office. Concerning this there is some lack of unanimity among doctors. It is said that the dilator of choice is a type permitting considerable pneumatic or hydrostatic pressure to be applied to the region of the cardia. It has been the belief of some of us that in certain cases equally as good, or actually better (and certainly safer), results are obtained by the gentle, painless passage of mercury filled bougies *without* application of pressure.

In possibly 20% of cases conservative measures, including those mentioned above, the use of belladonna-type preparations, tranquillizers and sedatives, fail to relieve the symptoms. Psychotherapy is definitely of secondary and incidental value. The

treatment of the intractable cases is now standardized—the Heller transthoracic linear cardiomyotomy. This safe and simple operation does everything it is supposed to do. That is it permits relaxation of the outlet of the esophagus (abolishes spasm of the cardia if you wish), thereby relieving symptoms (although not restoring normal peristalsis) and leaves the patient grateful.

(As we mentioned in the introduction, we will not include mega-esophagus in this discussion except to say that the Heller operation is again the procedure of choice in this distressing condition.)

It might be added that when doing the division of the circular muscle fibers in the Heller operation, one should not extend the incision into the muscle of the stomach wall, nor should one interfere, with the crural fibers of the diaphragm, by over-zealous mobilization and retraction of the lower esophagus. Likewise, it is not obligatory to introduce a finger into the stomach to guide the knife as some do routinely with this technic, although we discovered a previously unsuspected congenital band in one case by this maneuver. If these simple precautions are observed, regurgitation of stomach contents ordinarily does not become a problem. However, some surgeons do a concomitant pyloroplasty or pyloric myotomy to guard against such regurgitation. Any tendency toward recurrence of cardiospasm in the postoperative period is usually amenable to treatment by dilatation in the office.

### Summary and Conclusions

(1) The dysfunction of the esophagus characterized by failure of the peristaltic mechanism to propel food normally into the stomach, designated variously as achalasia, cardiospasm, or dystonia, is of unknown etiology and is associated with degeneration of the intrinsic nerve plexus of the esophagus.

(2) Diagnosis of achalasia is made partly by exclusion on the basis of history of difficulty swallowing liquids, and with the aid of fluoroscopic and X-ray studies at a barium swallow and by esophagoscopy. Studies of intra-esophageal pressure and the Mechohyl test are considered definitive tests.

(3) Therapy includes dilatation and the Heller transthoracic linear cardiomyotomy.

(4) Results of treatment are generally good, insofar as relief of symptoms is concerned, in spite of the fact that peristaltic motility is not restored and the unknown causative factor is not corrected.

### References

1. Kramer, P., and Ingelfinger, F. J.: Cardiospasm Generalized Disorder of Esophageal Motility, *Am. J. Med.* 7:174, 1946.
2. Olsen, A. M., et al.: Esophageal Motility in Achalasia (cardiospasm) After Treatment, *J. Thoracic Surg.* 34:615, 1957.
3. Kramer, P., and Ingelfinger, F. J.: Esophageal Sensitivity to Mechohyl in Cardiospasm, *Gastroenterology* 19:242, 1951.

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#### **The Value of Intra-articular injections in Osteoarthritis of the Knee: Miller, James H., White, John, and Norton, Thomas H., *J. Bone & Joint Surg.* 40-B:636, 1958.**

A series of 181 patients having primary osteoarthritis of the knee is reported in which intra-articular injections were used. Five types of injections were used. These were: lactic acid plus novocaine, saline, hydrocortisone, and in the fifth group a needle was inserted into the joint but no injection was made. There was no significant difference in the end result utilizing the different solutions, and the authors, therefore, feel that the psychological effect of the procedure on the patient is the only benefit. (Abstracted by Thomas F. Parrish, M.D., Nashville.)



Inflammations of the eyes are common in everyday practice. Yet some are of serious import and accurate diagnosis is important.

## TREATMENT OF EXTERNAL DISEASES OF THE EYE\*

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When confronted with a red painful eye, the doctor must consider four general conditions in a differential diagnosis:

- (1) Acute congestive glaucoma,
- (2) Iritis, more generally known as uveitis,
- (3) Conjunctivitis, and
- (4) Keratitis or corneal ulcer.

(1) *Acute congestive glaucoma* is caused by the iris obstructing the angle from which the aqueous drains out of the eye, and therefore the tension in the eye is greatly increased causing considerable deep pain. This condition usually occurs in a patient over 40 years of age; the pain may occur at any time of the day, in a dark room or after excitement. Frequently systemic symptoms, such as nausea and vomiting, accompany the pain, and many cases have been mistaken for acute abdominal disease. There is a rapid loss of visual acuity, and the patient may complain of halos around light. Upon examination one will note that the eye is markedly injected and inflamed, that the cornea has a hazy or cloudy appearance, that the pupil is moderately dilated, and that the iris is pushed forward almost against the cornea causing a shallow anterior chamber. If one palpates the globe with the index fingers it will be found to be hard and tender.

These patients should be referred to an ophthalmologist for treatment and evaluation, although any physician can most certainly start the medications since time is an all important factor in the treatment of glaucoma.

The patient should be given 500 mg. of Diamox (2 tablets) followed by Diamox,

250 mg., every 6 hours. (Diamox inhibits the formation of aqueous.) Pilocarpine (2%) drops should be instilled every 10 minutes for one hour, then one or two drops every 2 hours. (Pilocarpine acts by constricting the pupil, thus pulling the iris off the angle and also aiding in the filtration of the aqueous through the angle.) For pain one may use Demerol, and for nausea and vomiting Thorazine intramuscularly.

(2) The next condition considered is *uveitis*, or more especially *iritis*. Iritis may occur in anyone at any time. The conjunctiva is injected and inflamed, and the deep scleral vessels around the limbus especially are dilated. These patients complain of deep seated pain with photophobia and lachrimation. Upon examination one finds a constricted pupil; there may be noted a clouding of the aqueous, or pus-like appearance in the anterior chamber. Iritis is sometimes difficult to differentiate from acute glaucoma, although its onset is usually gradual, the pupil is constricted and the tension is not elevated.

The important factor in the treatment of iritis is a thorough history and general physical examination, with special attention to a review of the systems for possible foci of infection. The etiology of iritis is sometimes very difficult to establish. The disease is classified as granulomatous or non-granulomatous uveitis.

*Nongranulomatous iritis* is believed to be caused by a bacterial toxin, as in streptococcal infection. Treatment is begun first by complete dilation of the pupil with the use of atropine 1% and Neo-synephrine 10%; the pupil must remain dilated as long as the iritis is present. Should the patient be allergic to atropine, one may try homatropine 2% or scopolamine 0.33% three times daily.

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\*Read before the Upper Cumberland Medical Society.

Meticorten, 5 mg., 3 or 4 times each day will help to prevent adhesions of the iris. Improvement in nongranulomatous uveitis occurs in about ten days. Then the Meticorten should gradually be discontinued. Antibiotic drops with hydrocortisone every two to four hours must be given. Chloromycetin with hydrocortisone has been shown to penetrate the cornea in sufficient concentrations and is a good antibiotic for this use. Should a focus of infection be found, such as sinusitis, tonsillitis, infected tooth, or a cystitis, this site of infection should most certainly be treated.

In *granulomatous iritis* one thinks of an etiology such as tuberculosis, syphilis, brucellosis or toxoplasmosis. The iritis has a prolonged low grade course. "Mutton fat" clumps of cells are seen on the endothelium of the cornea, and frequently there are nodules on the iris.

Here, also, the pupil should be dilated with atropine 1%, and locally an antibiotic with cortisone as drops may be used. It is most important to make the diagnosis and treat the specific disease, as for example, tuberculosis should be treated with streptomycin, isoniazid, and PAS, or syphilis should be treated with penicillin.

(3) Every physician is familiar with the signs and symptoms of *conjunctivitis* or "pink eye." There are as many types of conjunctivitis as there are bacteria or allergins to cause it. The most common complaint is, "my eye is red and inflamed and it feels like something is in it," or "there is a discharge from my eyes and in the morning the lids are stuck together." These symptoms generally represent a bacterial or purulent conjunctivitis. The most common cause is the pneumococcus.

Ideally, the purulent discharge should be cultured and sensitivity studies be done on the organism found. However, this takes about two days and in that time one should hope to have the conjunctivitis practically cured. Bacterial infections generally respond to alternating antibiotic and chemotherapeutic therapy. For example, antibiotic drops such as Chloromycetin, Neomycin, or Achromycin may be used every one or two hours; then one may apply an ointment such as Gantrisin, Furacin, or sulfathiazole every four hours and at bed

time. After such treatment, if the infection is not any better in four or five days, one may culture the discharge and find to which antibiotic the bacteria are most sensitive, and use this specifically.

If both eyes are red and inflamed and the patient complains of burning and itching, one may see by inverting the lids a rough or cobble-stone appearance of the conjunctiva over the tarsus,—this makes a diagnosis of allergic conjunctivitis. Hydrocortisone drops every four hours and cold compresses is the treatment of choice. Metretan, a mixture of hydrocortisone and Chlortrimeton, or Hydeltasol are good solutions to use in allergic conjunctivitis.

Many patients will ask you for a good "eye wash" when their eyes are a little red, burn or feel tired. OpH, a solution of Neosynephrine and zinc sulphate, has been found to be very satisfactory. However, there are many others equally as good such as Zincfrin, Vasizinc, to mention a few.

(4) Lastly there is *keratitis*. Here I will deal only with the superficial ulcers. Usually a corneal ulcer is accompanied by conjunctivitis. Again the most frequent cause is pneumococcus, or it may be a staphylococcus, streptococcus or of the diplobacillus group.

Corneal ulcers may be diagnosed by a localized grayish infiltration on the cornea which stains green with fluorescein. In these cases the pupil should be dilated with atropine, which prevents the ciliary body from going into spasms and causing severe pain. Again a culture should be made, especially when there is a large ulcer, and sensitivity studies be carried out.

Treatment should be started immediately with antibiotic drops such as polymixin or Neosporin, alternated with Furacin or Gantrisin every 30 minutes or hour, depending on how severe the ulcer is. It has been found that cortisone drops four times each day will prevent excessive corneal scarring. Cortisone is not to be used until one is sure of what one is dealing with, and pontocaine, which is believed to prevent healing, is not to be used in instances of corneal ulcers.

There is one specific corneal ulcer which I would like to consider in some detail,—the dendritic ulcer. This is due to the herpes simplex virus, or the fever blister virus.

When the cornea is stained with fluorescein one sees the perfect outline of a branched dendrite. These ulcers are extremely painful and such patients should be referred to an ophthalmologist. Cases of dendritic ulcers have been reported which respond to Aureomycin ointment every four hours; however, the treatment of choice is to cauterize the cornea with 4% iodine and cocaine. Cortisone and its derivatives are absolutely contra-indicated in these cases since they lead to widespread corneal infection and possible rupture. Dendritic ulcers tend to recur causing considerable scarring. Smallpox vaccination given each week for 6 weeks may help to build up an immunity to herpes simplex and should be used in recurrent cases.

#### Summary

The four conditions one must consider when a patient comes to the office with a red painful eye have been discussed, as well as the specific treatment used in each case.

Acute congestive glaucoma where the pain is deep with frequent nausea and vomiting. The eye is red and hard, the pupil is moderately dilated and the cornea cloudy. When first seen these patients are treated with Diamox tablets every 6 hours and pilocarpine drops.

Iritis should be differentiated into the granulomatous and nongranulomatous. Non-

granulomatous cases are treated by dilating the pupil with 1% atropine and Neosynephrine each day. Meticorten tablets are given orally, and antibiotic and hydrocortisone drops are used every two hours. A thorough history and physical examination must be done to find a possible foci of infection.

In granulomatous uveitis, such as with tuberculosis, the etiology must be determined and the specific treatment be used for that disease. The pupil should be dilated, and antibiotics and cortisone drops be used. Purulent conjunctivitis can be treated with alternating antibiotics and sulfadrops every two hours, while allergic conjunctivitis is treated with hydrocortisone and antihistamines such as Metretan.

With a corneal ulcer the pupil should be dilated, and cultures and sensitivity studies should be made. The patient should be started immediately on antibiotics such as Neosporin, polymixin and sulfadrops every 30 minutes. A change to the antibiotic of choice is made after the sensitivity and organism are determined. With a dendritic or herpes simplex ulcer the cornea should be cauterized with 4% iodine and cocaine. Cortisone and hydrocortisone are absolutely contraindicated in a dendritic ulcer. In short, if one is not certain about a corneal ulcer one should not use cortisone, since it can lead to a rupture of the globe and loss of an eye.

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#### False Glycosuria. (Letters to the Editor): Phillips, Alec, *Lancet* 2:586, 1958.

The author reports two instances of positive urine tests with Testape and Clinistix, both of which failed to reduce Benedict's solution. The bottles in which the specimens were contained had been previously used for hydrogen peroxide, and there was sufficient solution soaked in the screw cap to give a misleading result. The author warns that hydrogen peroxide contamination in urine may mimic glycosuria when these tests are employed. (Abstracted for the Tennessee Diabetes Association by Charles A. Rosenberg, M.D., Memphis.)



## STAFF CONFERENCE

### Vanderbilt University Hospital Gynecological Conference\*

**DR. FRANK E. WHITACRE:** The patient we are about to discuss today presents a history of infertility and some unusual aspects of endometriosis. The history, physical findings and laboratory data will be presented by Dr. Charles Hobdy.

**DR. CHARLES HOBODY:** This was the second Vanderbilt admission of this 38 year old married, white woman, gravida 1, para 1, abortus 0. She entered with the presenting complaint of, "Pain in the right side and shoulder" of 5 years duration. The first admission, 1 month previous, was for the same condition.

**Menstrual History:** Menarche was at age 14 with regular periods every 28 days. These lasted 3 days and were moderate in amount. Her menstrual period began the day of admission, the previous one having been normal 28 days ago. There was no history of menorrhagia or of vaginal discharge. During the last 1 to 2 years, there had been mild dysmenorrhea characterized by uterine cramping during the last days of the menses.

**Obstetric History:** Her first and only pregnancy was 7 years ago, when the patient was aged 31. This was an uncomplicated pregnancy of 40 weeks duration, characterized by an uncomplicated delivery and postpartum course. Since that time she has had involuntary sterility.

**Present Illness:** Five years ago she became apprehensive about not being able to have another child and sought medical attention. During the course of her physician's evaluation, he performed an endometrial biopsy, which was followed by a "Rubin's" test. With the injection she developed pain in the right shoulder which persisted for several hours. Since that time she has had similar episodes of pain coincident with her menstrual periods. Initially the discomfort was localized to the region of the right scapula but now spreads to involve the right deltoid and right breast. The pain usually begins a day prior to the onset of her menstrual flow and continues until two days after the menstrual bleeding has ceased. It has been described as dull and continual with a sharp stabbing component when she takes a deep breath or coughs. Pain has been accentuated by lying on her back or right side. She has been unable to wear a belt because of discomfort in her right costal margin.

**Past History:** At the age of 18 years the patient

had an appendectomy for acute appendicitis with an uncomplicated postoperative convalescence. There were no other operation, injuries or previous hospitalizations.

**Family History and Personal History** were non-contributory.

**Systems Review:** With the exception of the presenting symptoms no other abnormalities were elicited.

**Physical Examination:** B.P. was 124/76, P. 72, R. 18, and T. 98.6. The patient was a thin but well developed and well nourished young woman in no acute distress, alert and cooperative. The eyes, ears, nose and throat were not remarkable. The trachea was in the midline. The thyroid was not enlarged and there was no venous distension. The breasts were symmetrical and without abnormalities. The lung fields were clear and resonant to percussion and auscultation. The diaphragm moved 2 to 3 cm. on the right and 3 to 4 cm. on the left. The heart was not enlarged and no murmurs or thrills could be elicited. The abdomen was scaphoid; there was a well healed right lower quadrant McBurney scar. There was marked tenderness on attempted palpation of the liver, as well as mild suprapubic and right lower quadrant tenderness. The liver, spleen and kidneys were not palpable and there were no masses.

**Pelvic examination:** The external genitalia were normal; a parous introitus was observed. There was no evidence of infection of the Bartholin, urethral or Skene's glands. The vagina was well supported. The cervix was pointing downwards and backwards, and was firm and freely movable with a small mucoid polyp on the posterior lip. The uterus was anteverted, freely mobile and normal in size and shape. There was mild tenderness in the region of the right broad ligament with some induration on the same side. There were no palpable masses in either adnexa. The neurological examination was not remarkable.

**Laboratory Findings:** On the day of admission, the Hgb. was 12.4 Gm.; the P.C.V., 41%; the W.B.C., 6,800 with a differential of 68% segs., 28% lymphs. and 4% monos. Sedimentation rate was 9/3. Urinalysis revealed a specific gravity of 1.020, pH 6.0, and the chemical and microscopic aspects were unremarkable. X-ray studies of the right shoulder and cervical region revealed no evidence of a destructive process or narrowing of the interspaces. Gall bladder series, gastrointestinal series and chest films were all within normal limits. Electrocardiogram was normal.

A *provisional diagnosis* was made of endometrial implants to the right diaphragm following insufflation of the right Fallopian tube. On the 3rd hospital day, through an intrathoracic incision the diaphragm and abdomen were explored. At operation, on the inferior surface of the diaphragm, were found several small soft nodules 3 to 4 cm. in diameter, which had a bluish color and were located in both the lateral and central portions of the diaphragm. These nodules were excised. Careful palpation of the abdomen re-

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vealed no abnormalities of the liver or gallbladder. The pelvic organs were palpated through the diaphragmatic incision. The uterus and ovaries were thought to be normal and there were no tumor masses, induration or scarring.

*Pathologic Diagnosis:* Microscopic examination revealed the typical appearance of endometrial-like tissue.

The postoperative course was unremarkable and the patient was discharged on her 8th postoperative day. Subsequent follow-up revealed that her cyclic diaphragmatic irritation was greatly relieved and, when last seen one year postoperatively, she was relatively free of discomfort.

DR. WHITACRE: This patient presents some very atypical sequelae of sterility investigations and also unusual manifestations of endometriosis. Both aspects of our problem seem worthy of discussion. To start with, the onset of symptoms in our patient, which followed an infertility investigation, presents several questions I would like to discuss with our group this morning:

1) When, in the process of our sterility evaluation, should we consider procedures to determine patency of the Fallopian tubes?

2) When, in relation to the patient's menstrual cycle, should such a test of tubal patency be performed?

3) What are the relative merits, safeguards and limitations of the Rubin's test versus uterosalpingography?

DR. J. D. ANDERSON: It was on the borderline, 5 years ago, when this patient was investigated initially for involuntary infertility, as to whether she should have been considered sterile. She had apparently had an uncomplicated pregnancy two years previously. We consider two years of failure to conceive as minimal. Do we know how long the patient had been married and whether there had been any difficulty in becoming pregnant the first time?

DR. HOBODY: The patient was married when she was 29 years of age and became pregnant within nine months.

DR. ANDERSON: Well, we can state that initially she did not present a sterility problem. However, at 33 years she sought help. Her subsequent history confirms her inability to conceive, and so with 5 years of infertility she very definitely must be classed as infertile or sterile. I have purposely used the female so far; this is a com-

monly made error. One should initially think and plan one's sterility investigation as plural, for both the male and female partners are equally important. Usually the female partner will seek medical attention first. But early in the evaluation it is most important to assess the male partner's capabilities. I would recommend that both partners be examined concurrently, so the husband's status is known prior to any attempt to determine the female partner's tubal patency.

All of us are aware of the various factors that must be determined in a sterility work-up of the female: (1) a detailed history, and physical and laboratory examinations to determine whether she is a normal, healthy individual. Assuming she is and that she has no chronic disease, such as tuberculosis or anatomic abnormalities that would preclude the possibility of pregnancy, we then begin our investigations in earnest; (2) cervical factors, such as atresia or incompetence of the internal cervical os, the character of the mucus, the correction of inflammatory lesions of the exo- and endocervix; (3) ovulation factors, to determine whether it has occurred and the time of ovulation in relation to this patient's menstrual cycle. (The use of basal temperature charts to determine the latter have varying degrees of success. However, an endometrial biopsy on the first day of her menstrual period will give positive histologic proof as to whether the patient has ovulated, as well as an assessment of her ovarian-endometrial function and disease.) (4) uterotubal factors, such as congenital, anatomic and pathologic lesions involving the uterus and Fallopian tubes which would either obstruct and prevent conception from occurring, or interfere with nidation and implantation from proceeding in a normal manner. (It is not until this stage of our investigation that testing for tubal patency should be performed.); (5) ovarian factors, such as the polycystic ovaries of Stein-Leventhal syndrome; and (6) if factors 1 to 5 indicate a normal female reproductive anatomy and physiology, the importance of male factors is readily apparent. If the husband is also normal we must consider emotional and psychiatric aspects. In addition, there are



a few patients in whom we are unable to determine the cause of sterility.

DR. EDWIN L. WILLIAMS: I completely concur with Dr. Anderson's emphasis on the male factors in the sterile couple and the time when tests for tubal patency should be performed. If, on the basis of the endometrial biopsy, we know that the wife is ovulating, there is some value in the post-coital examination of the intracervical mucus and that from the posterior fornix for motile and migrating sperm—the so-called Huhner test. We should do this in addition to the usual study of the male involving sperm counts, determinations of active forms and the like.

In reference to Dr. Whitacre's second query, as to when, during the menstrual cycle, tubal patency tests should be attempted, the present case illustrates circumstances when it should not be done. By all odds the safest period is in the days of the menstrual cycle between the cessation of menstrual flow and the time of ovulation. In a patient such as ours, with a 28 day menstrual cycle and a 3 day menses, I would like to do it between the 7th and 10th day of her cycle. One very good reason for this timing is that it will not disturb a fertilized ovum which might occur if one did it after the time of ovulation.

DR. J. ALAN ALEXANDER: Have we any evidence that fertilization has occurred with the ovulation immediately following say a Rubin's test?

DR. WILLIAMS: I don't know of a large series to support this theory, but all of us have had patients in whom this sequence has occurred. It makes an attractive hypothesis that, following distention of the Fallopian tube, minimal obstruction has been overcome so the ovum and sperm can meet and the conceptus migrate to the uterus.

DR. C. GORDON PEERMAN: If we accept this timing as optimal for testing tubal patency, and I do, it is anything but the ideal time for an endometrial biopsy. As Dr. Anderson mentioned, it should be on the first day of the menses.

DR. WILLIAMS: That's right. I don't believe there is any safe way in which we can combine the two procedures at one time to get our desired histologic and ana-

tomic information of ovarian-endometrial function and uterotubal patency.

DR. HOUSTON SARRATT: If one were willing to overlook the possibility of dislodging an impregnated ovum and move the endometrial biopsy up to say the 26th day of her cycle, one should do the tubal patency test prior to your endometrial biopsy. I'm not willing to take even that risk and concur with Dr. Williams.

DR. WHITACRE: Well, it appears that we have two of my questions answered. What about tubal insufflation versus uterosalpingograms? Here I'm sure we will have some differences of opinion.

DR. WILLIAM McGANITY: I suspect you are right. But it seems to me important to consider what information we can gain from each procedure. The Rubin's test will give positive information only concerning the patency of the reproductive tract from the level of the internal cervical os to the fimbriated end of the Fallopian tube. It can be very difficult to ascertain if one or both tubes are patent from the gurgle of gas into the peritoneum or by reference of discomfort to one shoulder or another. If the test is negative it tells one that the tubes are not open but does not give any information as to whether the block is congenital or acquired, and where occlusion has blocked the process or any indication as to whether the obstruction might be correctible.

On the other hand, uterosalpingography utilizing a radiopaque media will reveal the whole reproductive tract from the cervix to the abdominal cavity via one or both tubes, if either one or both are open. Thus, one has information concerning the uterine cavity and the tubes. If the tubes are blocked the X-ray films will reveal the level of obstruction and frequently give some indication as to whether the lesions are correctible.

DR. WHITACRE: Are you suggesting that we discard tubal insufflation in favor of uterosalpingography in all sterility investigations?

DR. McGANITY: I won't go that far, but would suggest that in the patient suspected of having pelvic disease, such as fibromyomata uteri, endometriosis or chronic quiescent pelvic inflammatory disease, the



X-ray studies are the procedure of choice. Also, if the Rubin's test is negative uterosalpingography should be used to follow through.

DR. WHITACRE: I think there is a point to be made in reference to either procedure concerned with injection. In the presence of acute or subacute inflammation of the reproductive tract, neither tubal patency procedure should be performed. It is equally important to avoid chronic pelvic infection that is still subsiding. We have all had instances in which, following the procedure, there has been a flare-up of the disease.

DR. PEERMAN: I think McGanity is probably correct. The Rubin's test seems so much simpler. Also, it is an office type procedure and, when positive, it is fairly definitive. When only one tube is open conception can still occur with the ovum released from the patent side, let alone by peritoneal transmigration of the ovum from the ovary on the occluded side. It is the patient with a negative Rubin's test where the information gained in X-ray studies may be useful.

DR. WILLIAMS: The recent use of uterosalpingography to demonstrate such uterine lesions as submucous myomas and cervical incompetence illustrates further the value of the technic in patients irrespective of sterility problems.

DR. WHITACRE: As the hour is late, I would like to move the discussion over to the endometriosis aspect in this patient. But before I do there are a few points in connection with the Rubin's test that have not been mentioned. What gas should be used? Everyone is agreed that carbon di-

oxide is the one of choice. I might say even more strongly that both air and oxygen should not be used. Along the same line is the level of pressure one can safely apply—a pressure of not over 150 mm. of water. Also, there is the fact that either with gas or dye, one can induce temporary spasm in the Fallopian tubes which will give a negative patency test, if the gas or dye is injected too quickly or under too great pressure.

Certainly the sequela, as revealed in this patient with endometrial implants on the inferior surface of the diaphragm, is a rare occurrence. It seems even more amazing that there was apparently no evidence of endometriosis elsewhere in the pelvis. I'm sure that Sampson, back in 1921, would have used a case such as this to support his theory that retrogressive flow of endometrium out the Fallopian tubes was the primary cause of the disease. I do not believe at the present time we would accept his hypothesis in all instances. But this is another demonstration that endometrial tissue can implant and undergo cyclic hormonal variations outside of the usual sites in the reproductive tract.

In the past weeks we have had some very interesting microscopic slides pass through our Gynecologic Pathology Laboratory. The specimen revealed adenomyosis and it appears that there was viable endometrial tissue within the lumen of several blood-vessels. As this patient has changes in X-rays of the lungs and the first filters for the endometrial tissue from the uterus are the lungs it makes an interesting thought of another means of dissemination of the condition.

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**Sexual Function in Male Diabetics: Brit. M. J. 2:844, 1958.**

Reference is made to a recent study of the reproductive capacity of diabetic men. Impotence was noted in 25% of patients aged 30 to 34, and the incidence rose steadily to almost 75% by the age of 60. The overall figures are between two and five times those reported by the Kinsey group in the normal male population. While impotence is particularly common in the early stages of diabetes, potency may return when the disease is ade-

quately controlled. Nevertheless, about 40% of all male diabetics will be found to be permanently impotent, the cause being unknown and the treatment ineffective. The complications of neuropathy have been implicated as a cause. Fertility among diabetic males who are not impotent is said to be normal. There is no evidence that diabetes in the male affects the incidence of prematurity, stillbirths, or congenital malformations in their offspring. (Abstracted for the Tennessee Diabetes Association by Charles A. Rosenberg, M.D., Memphis.)

## CLINICOPATHOLOGIC CONFERENCE

### Periarteritis Nodosa\*

J. Robert Teabeaut, II, M.D., and  
Warren Kyle, M.D.

A 32 year old negro male garage attendant was admitted to John Gaston Hospital because of edema of the lower extremities and joint pain. He had been seen in the O.P.D. several times during the previous 10 years for weakness, headache, left chest pain associated with insomnia, and "nervousness and asthma." On one occasion a loud apical systolic murmur was heard and the left ventricle was thought to be enlarged. The ECG. and sedimentation rate were normal then.

For 3 months before admission he had backache, and for one month had swelling of his feet. Physical examination then revealed a B.P. of 150/88, P. 96, R. 20, T. 99.4. A grade 2 apical systolic murmur and 2+ pedal edema were the only positive physical findings. Hct. 23.2 mm., B.C. 1.4 mm. Urine showed Sp. Gr. 1.020, 4+ protein, many RBC. and WBC. with 3 to 8 granular casts per hpf. X-ray studies were reported as: normal heart size and minimal infiltrative lesions in left lung field behind the fourth rib anteriorly. One week later he had more pain on motion of the knees and ankles, costovertebral angle tenderness, pedal edema, and the systolic murmur described above. Differential WBC showed segs. 55%, 36% eosinos., 9% lymphos.

He was placed on Thiosulfil until hospitalization three days later. Additional history revealed nocturia three times per night and recently, denial of respiratory difficulty, but the admitted use of two pillows. There was no history of hematuria or dysuria. He stated he had felt "feverish" for about 2 weeks. He had nausea without vomiting for one week, no hematemesis, melena, or icterus. He neither drank nor smoked and had worked regularly until the present illness.

**Physical Examination.** B.P. 170/100, P. 108, R. 22, T. 100.4. The patient was a well developed and nourished ill negro man with edema of the lower extremities. The physical status otherwise was as recorded in the clinic visit.

**Laboratory Data.** Hct. 20 mm., WBC 24,850, with 43% segs., 51% eosinos., 5% lymphs. Total eosinophil count was above 10,000 per cu. mm. L.E. and sickle cell preparations were negative repeatedly. Routine agglutinations were negative. PPD. and histoplasmin skin tests were negative. Bone marrow interpretation: (1) Absolute eosinophilia with metamyelocytes. (2) Suppression of erythropoiesis. (3) slight plasmocytosis, monocytosis and histiocytosis. Marrow cultures for pyogens, Tbc and fungi were sterile. CRP was

3+, and ASO titer—50 Todd units. Urine cultures were sterile. P.S.P. was less than 10% in one hour. One arterial blood culture grew a micro-aerophilic streptococcus. Six other blood cultures were sterile. Serum albumin was 2.9, globulin 3.0 Gm. N.P.N. was 80 mg. per 100 cc. An inguinal lymph node biopsy showed nonspecific acute and chronic lymphadenitis. A muscle biopsy was reported as showing no muscle changes but there was focal acute inflammation about capillaries in the subcutaneous tissue.

**Hospital Course.** The patient's condition remained about the same for the initial week after which the edema increased and he complained of upper abdominal pain which was relieved by antacids. An upper G.I. series was done. By the 12th hospital day the N.P.N. was 163 mg. per 100 cc. The patient received Gantrisin, prednisolone, hydrocortisone and intravenous fluids. On the 15th hospital day penicillin was started because of the presence of gram-positive diplococci in blood streaked sputum and X-ray evidence of consolidation in the left middle lung lobe. The patient was afebrile on the 18th day and seemed to be improved symptomatically. On the 26th day the N.P.N. was 139 mg. per 100 cc., Na. 129, K. 6.7, Cl. 99, and CO<sub>2</sub> 10 mEq./L. On the 28th hospital day, because of increasingly severe respiratory distress, digitalis, oxygen, morphine, and phlebotomy were instituted. An X-ray film showed almost complete opacity of the upper two-thirds of both lungs. The patient expired 8 hours after the onset of pulmonary distress.

DR. J. W. KYLE: This patient had many findings that attract our attention—joint symptoms, cardiac involvement, pulmonary findings, uremia, eosinophilia, anemia, and gastro-intestinal complaints. Before going further with the clinical evaluation could we have the radiologist discuss the case?

DR. B. M. BRADY: The clinic chest film 10 days before hospitalization shows normal heart size and contour. The lungs are normal except for a soft infiltrate overlying the 4th left rib anteriorly. From this film alone, one would suspect minimal tuberculous infection. However, the patient had a negative tuberculin skin test and for the present we should assume this is not tuberculosis. Twenty days after this film another chest film is certainly within normal limits. But 1 week later a dense consolidation is seen in the right middle lobe and smaller nodular densities are scattered in the right upper lobe base and throughout the left lung. Some of these smaller nodules could be called miliary densities. A chest film taken when the patient was in a terminal state shows opacity of both

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upper lung fields. This could represent either pneumonia or pulmonary edema. An upper G.I. series obtained the day before death shows a normal esophagus and stomach. There is a large peculiar crescentic deformity in the apex of the duodenal cap. Such a defect may be seen in association with subserosal hemorrhage usually resulting from a bleeding duodenal ulcer or trauma. Extrinsic pressure could produce this defect. To summarize, there are progressive lung changes which are rather non-specific. Many infectious diseases could explain these findings. In view of the multiple systems involved in this case, the chest findings could be compatible with a collagen disease, principally polyarteritis nodosa. I would like to emphasize, however, that a strict interpretation of the films above does not permit a radiological diagnosis in this case.

DR. J. W. KYLE: Could the right middle lobe consolidation be an infarction?

DR. B. M. BRADY: Yes, it certainly could. However, because of the smaller densities outside of this lobe, I feel this most likely represents a single process, such as pneumonia. It is difficult to differentiate pulmonary infarction and pneumonia unless they are very classical.

DR. J. W. KYLE: An eosinophilia of 51 and 36% is a striking finding, and in a patient who has multiple system involvement makes one think immediately of periarteritis nodosa. Not that an eosinophilia is commonly found in polyarteritis—probably less than 25% of cases—but it is also the one disease that is associated with multiple system involvement. Of course eosinophilia may be found in parasitic infestation, allergy, skin disorders, asthma, etc., but none of these are evident in this patient. Polyarteritis occurs 4 to 1 in males of usually 30-40 years, which fits this patient. Because of the fever, anemia and heart murmurs one would think of bacterial endocarditis. The blood cultures were negative except for the one which grew an almost anaerobic organism. This bacterium may cause subcutaneous infections so far as I know but not endocarditis. I think this organism was likely a contaminant. Further, endocarditis does not give such severe renal findings unless it is complicated by glomerulonephritis.

However, polyarteritis is accompanied by severe renal changes and the patient may die in uremia, as happened in this case. While some cases of polyarteritis have glomerulonephritis, too, I do not believe this patient had renal disease other than polyarteritis. Similarly, patients with polyarteritis may have asthma and this man complained of asthma. But I do not think he had true asthma. I was glad to see repeatedly negative sickle cell preparations since anemia, murmurs, joint pains and fever might have suggested that possibility. Rheumatic fever and lupus erythematosus should both be mentioned. Rheumatic fever does not produce eosinophilia or renal disease. Lupus is more common in women, is associated with leukopenia without eosinophilia, skin lesions, and frequently the L.E. test will be positive. In passing, it might be mentioned that a patient with polyarteritis also may have skin lesions and peripheral neuritis which this patient did not manifest. Involvement of the G.I. tract is not uncommon in polyarteritis. I would accept Dr. Brady's subserosal hemorrhage as the most likely explanation for the complaints in this case. It should not be forgotten, however, that prednisolone and hydrocortisone tend to produce intestinal ulcers. The lung findings may be directly due to polyarteritis or to infarction secondary to vasculitis. Polyarteritis frequently is terminated by secondary bacterial infection and the lung changes may be bacterial pneumonia. Finally, they could represent pneumonia with uremia. I am inclined to regard the pulmonary changes as infarcts with polyarteritis. I do not believe the murmur described several years ago is part of the present illness. Perhaps he had old rheumatic mitral valve disease with some insufficiency to explain the murmurs. My diagnoses are: Polyarteritis nodosa; (2) Healed rheumatic mitral valvulitis.

MODERATOR: The most popular diagnosis submitted by the audience was polyarteritis. Bacterial endocarditis was second. Some suggested Hodgkin's. Would you comment on that, Dr. Kyle?

DR. J. W. KYLE: Polyarteritis held my attention from the beginning and I didn't think of Hodgkin's or tuberculosis. The anemia, eosinophilia, fever, gastric com-



plaints and nodular densities in the lung should have suggested the possibility of Hodgkin's to me.

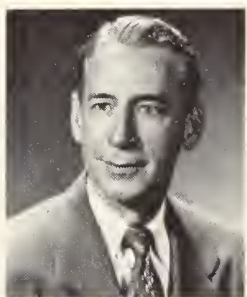
DR. TEABEAUT: The body showed the edema described clinically. Each pleural cavity contained 200 cc. of yellow-clear fluid. The pericardial cavity contained 300 cc. of similar fluid and there were 1800 cc. of clear fluid in the peritoneal cavity. This accumulation of fluid in tissues and body spaces indicates chronic congestive heart failure. The low serum proteins and polyserositis associated with periarteritis are other factors which may have contributed. All of the medium-sized arteries, e.g., mesenteric vessels, were very rigid, but none had nodules or aneurysms along their course, nor was there evidence of extravisceral thrombosis. The heart weighed 400 Gm. The epicardial portions of the coronary vessels showed only uniform thickening of the wall. The intramural portions showed fibrinoid necrosis and arteritis. Recent and old areas of myocardial ischemic necrosis had resulted. All heart chambers were dilated. The valves were normal except the mitral where there was recent non-thrombotic, sterile, fibrinoid necrosis. This resembled the Libman-Sacks lesion of lupus. The right lung weighed 1425 Gm., the left lung, 1260 Gm. There were focal bronchial arteries with inflammation, fibrinoid necrosis and thrombosis. This was interpreted as polyarteritic and probably represented the early X-ray findings. Severe congestion and edema, with considerable hemosiderin phagocytosis was attributed to congestive heart failure both acute, from which the patient died, and chronic. An early terminal bronchopneumonia was present. The liver weighed 2300 Gm., had

marked congestion and rounded borders. It showed the chronic passive congestion of heart failure. The 120 Gm. spleen had a thickened capsule. Throughout the bowel, the intramural arteries and arterioles showed a remarkable arteritis with fibrinoid necrosis. Many vessels were occluded by organized, recanalized thrombi. Others were closed by fresh thrombi overlying eccentrically located areas of mural necrosis. In the vicinity of older lesions were macrophages filled with hemosiderin. No ulcer or hemorrhage was found in the duodenum. The X-ray deformity may have been the result of extrinsic pressure as Dr. Brady suggested, since there were numerous, large, succulent lymph nodes throughout the retroperitoneal space and especially about the porta hepatis. Each enlarged, pale, swollen, edematous kidney weighed 250 Gm. The hilar arteries showed the eccentric fibrinoid necrosis and arteritis seen in other organs and characteristic of polyarteritis nodosa. There were no old or recent parenchymal infarcts. Another remarkable finding was in the glomeruli where the changes of acute to subacute glomerular nephritis were seen. The oldest lesions were sclerotic glomeruli. Others showed well-developed crescents and capsular adhesions. The recent changes were membrane swelling, capillary loop occlusion, and polys scattered about the tufts. The arterioles were not involved. About a third of the cases of polyarteritis are said to be associated with glomerulonephritis.

#### FINAL PATHOLOGIC DIAGNOSIS:

- (1) Periarteritis nodosa.
- (2) Acute and subacute glomerulonephritis.

## President's Page



JAMES C. GARDNER

Providing medical care for the aged is one of the critical problems facing us today.

The 1957 census estimates that 278,000 or 7.7% of the population, are over 65.

The projected figures

for 1970 reveal that 361,000 persons, or 9.3% of Tennessee's population, will be in the 65 or over group. This means that 9 to 10 persons in every 100 will have reached 65 years of age.

It seems that every large health group is busy studying the problem and compiling statistics on the best way to solve this matter. But will they have time?

The Public Service Committee of the Tennessee State Medical Association has named a sub-committee on aging that is currently working on the problem in Tennessee.

In recent months a Tennessee Council on Aging has been organized to study the problems of the aged on a comprehensive basis. Representatives of the various groups participating in the Council are from the Tennessee State Medical Association, State Dental Association, Hospitals, Tennessee Association of Nursing Homes, Nurses Association, Tennessee Hospital Service Association, the Public and Mental Health Departments of the State, the Tennessee Labor Council, and others. Much of the work and planning has yet to be done by this group, but the job has been assumed and results are expected in the near future.

In November a special committee of the State Council on Aging, reporting on the scope and purpose of the Council, outlined the following: (a) To identify and analyze the health, social and economic needs of Tennessee's aged. (b) Appraise available resources for the aged. (c) Suggest programs to improve the well-being of the aged. (d) Stimulate interested organizations to implement such programs.

It is hoped that the Council will prove to

be a potent organization in mustering community interest in resources to provide over-all improvement for a constantly growing segment of our state's population. It is a worth-while experiment in community action and has demonstrated an interest in the problems of the aged on the part of a sizeable representation of Tennessee's leadership.

At the 1958 clinical meeting of the AMA House of Delegates, a recommendation was adopted as follows: "That the American Medical Association, the State and County Medical Societies, as well as physicians everywhere expedite the development of an effective voluntary health insurance or prepayment program for the group over 65 with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group which will permit the development of such insurance and prepayment plans at a reduced premium rate."

The American Medical Association has also unveiled a new aging program, designed to supplement individual health plans. The program calls for: (1) stimulation of a realistic attitude toward aging by all people; (2) extension of effective methods of financing health care for the aged; (3) expansion of skilled-personnel training programs and improvement of medical and related facilities for old people; (4) promotion of health insurance programs and wider use of restorative and rehabilitative services; (5) amplification of medical and socio-economic research in problems of aging; (6) cooperation in community programs for senior citizens.

It is the duty of state medical societies to study the problem of the aging population in their own states and local communities. Only in this way, will the answer for many situations be revealed before they become insurmountable.

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FEBRUARY 1959

## EDITORIAL

### SCHIZOPHRENIA

There are approximately 750,000 patients in public mental hospitals and at least 400,000 of these have chronic schizophrenias with only the slightest chance of recovery. Edwin F. Gildea<sup>1</sup> has recently reported on the Second International Congress for Psychiatry held in Zurich in 1957, which bore the title: "The Present Status of Our Knowledge about the Group of Schizophrenias."

Although there was some difficulty in reaching unanimity about the diagnosis of the disease, certain concepts by Langfeldt were discussed in an attempt to clarify the picture. He divided the diseases into two main groups. First, schizophrenia, which implies that the psychologic splitting phenomena take place in patients while they retain clear consciousness. To the splitting

phenomena belong clear ideas and feelings of passivity, of outside control, derealization and depersonalization. The patient often accepts these experiences without comment. Secondly there are patients with schizophreniform psychosis, who, in contrast, often have clouding of consciousness, much emotional display and usually an acute onset, frequently associated with a life crisis, such as induction into the army, fear of combat, loss of loved ones, and the like. Certain workers believe that patients who fail to have a remission during the first two years in the hospital will remain chronic schizophrenics in about 50% of cases. Of those who do not remit after five years, 90% or more will continue to have manifestations of schizophrenia. Furthermore, of those patients who seem to have schizophreniform symptoms at the time of initial examination, most will have recovery and only a small percentage of these actually will become chronic schizophrenic patients. Heredity undoubtedly plays a role in schizophrenia and this has been supported by a number of papers presented at the congress. There are two schools of thought concerning the principal factors leading to schizophrenia. One believes that social experiences are primary, the other that some somatic disorder accounts for schizophrenia. Neither of these schools of thought can be resolved at the present time and proponents of both sides can find adequate backing for their points of view.

Various tests have been developed in an attempt to differentiate schizophrenic patients from nonschizophrenic patients, but psychologic investigations, neurologic investigations, endocrine investigations and even biochemical investigations have brought us to, but not through, the doorway of truth. The medical literature has been flooded with various biochemical abnormalities detected in the blood of schizophrenic patients but, as more carefully controlled work has been done, no true abnormalities in the serum of schizophrenics have been detected so far.

The literature reporting varying degrees of success in treating schizophrenic patients is enormous. The wide conflict in results is easily understood, however, if one takes into consideration the problems of diagnosis,

<sup>1</sup>Gildea, Edwin F., Present Status of Schizophrenia Problem, Am. J. Med. 25:942, 1958.



prognosis and treatment. It must be remembered that these patients are difficult to understand and to manage. Recently it has been rediscovered that sympathetic, adequate personal care in the hospital improves the patients' behavior and increases the number of remissions. The modern era began in 1929, when prolonged sleep was induced by drugs such as barbiturates and other long-acting anesthetics. Remissions were reported in 30 to 70% of patients. It was usually noted, however, that patients in whom the onset was acute and of recent origin responded best, and that patients with the chronic disease did not do so well. In 1933, the next promising advance in treatment came with insulin coma therapy. As time has passed and sober evaluation of results has occurred, it now seems probable that insulin is of value in acute cases by shortening the duration of the first attack. Appel has compared the condition of patients treated with insulin with untreated patients after five years and has found no difference in outcome. Only 27% of both groups showed recovery or marked improvement.

The next method of therapy used was electroconvulsive therapy, and Freyhan has reviewed results of treatment of schizophrenic patients in the Delaware state hospital before and after the introduction of electric shock therapy. He found one-fourth recovered, one-half became chronic schizophrenics and one-fourth had frequent recoveries and remissions. After the introduction of shock therapy, however, a more rapid discharge rate of new cases was apparent. About 50% continued to become chronically affected.

A long-term follow-up of patients selected by Langfeldt showed that 92 of 105 schizophrenic patients remained unchanged or worse, regardless of treatment previous to the time of follow-up, and that only 5 were able to work and on the whole were free of symptoms. In contrast to the true schizophrenic patients, it was found that in 30 of 39 schizophreniform cases the patient had recovered, and the majority of these patients had recovery following electroconvulsive therapy.

We can therefore conclude that prior to the advent of tranquilizing drugs, available

therapy provided alleviation of the first symptoms, and the time spent in hospitals was greatly reduced, but the ultimate outcome remained unchanged.

In 1952, the new tranquilizing drugs, chlorpromazine and reserpine, were introduced as treatment. They proved enormously popular and the literature, largely uncritical, describes therapeutic success. Certainly, more patients have been improved sufficiently to be discharged under this new drug therapy than under previous therapeutic regimens. In New York state, for example, for the first time, more patients were discharged in 1956 and 1957 than were admitted to the mental hospitals. However, these figures should be interpreted with caution because most of the improvement occurred in new cases and little change occurred in the patients with chronic schizophrenia, that is, those patients who had been in the hospital for two or more years. However, disturbed behavior was reduced and restraint and seclusion were no longer needed. It is hoped that the results obtained will be better than other methods previously tried, but it seems proper to conclude that chlorpromazine and other phenothiazine derivatives alleviate schizophrenic symptoms and make patients easier to manage, but probably do not alter the course of the disorder.

Although this is not a refreshing outlook on the present status of the schizophrenia problem, it, at least, gives us a realistic view of how far we seem to be from a method of curing this tremendous number of presently unrehabilitated patients.

A. B. S.



#### WHAT IS THE FUTURE OF THE HEALTH FUND DRIVES?

An interesting article appeared in a recent issue of *Harper's Magazine*, entitled "Mutiny of the Bountiful," which offers a portrayal and critical analysis of a subject which has provoked some thinking by most of us.

Though the raising of funds in the name of disease is in the main an activity of laymen, the topic is of particular interest to the medical profession for involved are patients, their treatment and rehabilitation, clinics and research funds.

The author discusses numerous aspects and problems of these programs and speculates upon the possible solutions. It all began with the Society for the Prevention of Tuberculosis in 1892. A few other campaigns got underway in the several decades before 1934. In that year the President's Birthday Balls were started to raise money for the Warm Springs Foundation in Georgia and aroused a greater interest in poliomyelitis. The National Foundation for Infantile Paralysis began its March of Dimes which resulted in a fabulous amount of money. The author quotes \$2 million raised in 1941 and \$65 million in 1954. With an incidence only of 47 cases of polio for 100,000 population the funds were expended lavishly in the care of patients in "polio centers." The Multiple Sclerosis Society has increased its "take" from \$46,000 some years ago to \$2 million in recent years. The Heart Association said to have collected about \$100,000 annually before 1946, has increased its funds to \$20 million per year. The Cancer Society allegedly collected \$800,000 in 1944 and \$30 million in 1957. The annual sale of Christmas seals for the antituberculosis program is \$26 million.

The total of \$170 million collected in the health drives are naturally ear-marked for the specific diseases for which the funds were collected. As medical persons, many of us have wondered whether the money thus collected on an emotional appeal and with much publicity is wisely expended in terms of the overall health needs of the people. Presbyterian Hospital of New York is quoted in the article as finding that 52,000 out of some 65,000 diagnoses on bed patients did *not* fall into the categories covered by the health drives.

The multiplicity of drives for community projects led to the development of the Community Chest programs which have become widespread. This was done to conserve time in business and industry as well as for the manpower needed to collect the monies. Now a similar move is developing in the health fields. Both industry and labor in some industrial areas have preferred a union of health drives with the Community Chest. This combination has been successful in some cities. The federal government, it seems, countenances only two drives a

year among its employees, one for a Community Chest and another for a combined drive for health agencies.

It is admitted by those who are interested in combined drives that fewer total dollars are given when health fund drives are combined with a fund raising campaign for the Community Chest. Thus, it is believed by many that two annual drives might be the answer to this confusing situation,—one a Community Chest drive, the other a combined drive for funds for the health groups. The author of "Mutiny of the Bountiful" suggests that contributors might thus have a better opportunity to choose as between the several health agencies or to donate to the combined group if they had no personal preferences. Fund raising might well be more economical, thereby. (It is estimated that \$26 million of the \$170 million collected annually by the health drives go to the cost of collection.) Lastly, the author believes that there will be volunteers for this task of a combined drive rather than dragooned "volunteers" as is often the case now since so many workers are needed in the multiple drives.

From the comments made by many doctors in casual conversation, it is quite obvious that they, as well as laymen, wonder where the multiplicity of drives is going to end, and medical men especially wonder if the money raised is expended to the best advantage in the face of the great need for money for medical care. It will be interesting to await developments.

R. H. K.

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Sander, Marion K.: *Mutiny of the Bountiful. Why the Volunteer Health Moneyraisers Are Rebellious*, Harper's Magazine, p. 23, Dec., 1958.



## Special Article

### Medicare

There are members of the Tennessee State Medical Association who have inquired about the status of the Medicare program under the new contract negotiated in November between the Tennessee State Medical Association and the Department of Defense. To keep the membership informed this explanation attempts to present the present status of Medicare in Tennessee.



In the early part of September 1958, a letter was mailed to every TSMA member containing important information on the changes in the Dependents Medical Care Program effective on October 1, 1958. The revisions greatly reduced the allowable services under the program.

On November 3 and 4, representatives of the Tennessee State Medical Association negotiated a new contract with the Department of Defense. With but few exceptions this contract is similar to the old one. The new contract became effective December 1, 1958.

Some officials in Washington believe that the government can operate health programs through medical facilities that are already established in service areas, more economically than through private sources. Congress became convinced of this in the Medicare venture after noting a sharp rise in the cost of professional services since its inception. For example, obstetrical services accounted for over 40% of all Medicare claims.

Right or wrong, Congress saw costs rising above the appropriation levels, and so acted to reduce participation by private physicians. This was much in evidence when the Tennessee negotiators worked with government representatives in November on a new contract and fee schedule. It appears that the government has established to its satisfaction that there are more economical means of providing health care for military personnel than by unlimited contracts with medical associations.

Many physicians resent government regulations in establishment of fees. During the first year under Medicare, Tennessee physicians worked on a fee schedule which was negotiated between this Association and Medicare officials. Under this program, each procedure was standardized and evaluated by agreement, using the relative unit value for each procedure.

When the new contract which became effective last December 1 was discussed, Medicare officials asked that the government be allowed to pay doctors on their usual charges for patients within the \$4500 income level. They expressed the philosophy that they did not wish to impose fees for services.

Tennessee negotiators in the present contract, again used the relative value system as the basis for the maximum fee schedule that was adopted.

Doctors are urged to make their *regular* and *usual charges* for such services to persons coming under the Medicare program. Should such charges be above the maximum allowed, payment can still be made if the Medicare review committee feels that the individual case justifies the extra cost, or if the charge actually is the usual fee for private patients within this income level in the community.

All physicians in Tennessee who care for patients coming under the Medicare program should make their regular charges, the same as to a private patient. If such charges are within the limits of the Medicare fee schedule and are allowable under Medicare provisions, the claim will be promptly paid. The fees negotiated under the new contract are *Maximum Fees*, and any charges made above the maximum must go before the District Medicare Committee for evaluation and approval. District Committees have now been established to determine such charges in each of the ten Councilor Districts of Tennessee.

Since Tennessee physicians are requested to make their regular charges to Medicare patients, the maximum fee schedule negotiated in November has not been printed for distribution because the doctors' usual fees are to be applied.

This review is primarily an effort to acquaint Tennessee physicians with the status of the Dependents Medical Care contract. It is not intended to argue the "right and wrong" of Medicare. The private care of eligible Medicare patients has now been greatly reduced since the revision went into effect on October 1. The dependents of service personnel are still being given health care on an adequate basis from private physicians. As required, many patients now have to go to military installations operated by the Armed Forces.

This problem is not an easy one. The solution must take into account expediencies, and when the final answer is written there will be a distinct awareness that practicing medicine for the government is different from private practice.



The principle point to be made clear in this discussion is that doctors in the private practice of medicine are requested to make their customary charges to Medicare patients, as they would to their private patients in the same economic status. Other than the restrictions imposed on the program and which became effective October 1, 1958, the new contract is essentially the same as the previous contract existing between the Tennessee State Medical Association and the government.

## DEATHS

**Dr. Fray O. Pearson**, 56, died January 9th as a result of a heart attack, in Macon, Georgia.

**Dr. J. H. Huff**, 84, Newport, died January 1st in a Newport Hospital.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Greene County Medical Society

The Society held its regular dinner and scientific meeting on January 6th at the Elks Club. The newly elected president, Dr. L. E. Collidge, and secretary-treasurer, Dr. Carl Romans, officiated. The scientific program consisted of a paper by Dr. Sheldon E. Domm, of Knoxville, on "Dysphagia—Cause and Treatment." The Society approved the course to be conducted by the local Red Cross on "Mother and Baby Care."

### Knoxville Academy of Medicine

The program at the regular meeting on January 13th, at the Academy Building was conducted by the Public Service Committee of the society. The speaker was Mr. Aubrey D. Gates, Director of the Division of Field Services of the A.M.A., Chicago, who gave a report of the re-organization of the A.M.A. staff offices as well as a very enlightening talk on national legislation. Guests of the society included Mr. Charles Johnson, Field Representative of the A.M.A. for Tennessee, Mr. Jack Drake, public service director of TSMA and Mr. Jack E. Balentine, executive secretary of the Tennessee State Medical Association.

### Nashville Academy of Medicine and Davidson County Medical Society

The Academy's annual banquet and installation of officers was held on January 13th at the Hermitage Hotel. New officers were introduced. Pins were presented by the president of the Tennessee State Medical Association to Academy members who had been in practice fifty years or more. Brief remarks were made by the retiring president, Dr. W. G. Kennon; the presidential address was given by Dr. Rollin A. Daniel, Jr., president of the society for 1959.

### Chattanooga-Hamilton County Medical Society

On January 6, the Society installed its president for the year, Dr. Carl A. Hartung. In his inaugural address the new president called on fellow physicians to improve their services to the public. The meeting was held at the Chattanooga Golf and Country Club. At the installation meeting, Dr. Harry A. Stone was installed for a third term as secretary-treasurer. Dr. George K. Henshall is president-elect to become the president in 1960. Dr. Arch Bullard was chairman of the program and was assisted by Dr. Robert G. Demos.

### Warren County Medical Society

The society held its regular meeting on December 15th for the purpose of organizing its activities for the year and holding an election of officers. Dr. Ralph B. Moore of McMinnville was named president, succeeding Dr. J. C. Gaw. Other officers named were Dr. J. E. Phillips, vice president, and Dr. C. T. Stubblefield, secretary-treasurer. Dr. John T. Mason and Dr. C. M. Clark were named as delegates to the State Medical Association.

### Anderson-Campbell County Medical Society

The society sponsored a turkey dinner for members and their wives on December 18th at the Russell Hotel in LaFollette. At the meeting, Dr. John C. Pryse was elected president for 1959; Dr. Charles Rogers was named vice-president for Campbell County and Dr. J. M. Cox vice-president for Anderson County. Dr. R. C. Pryse was re-elected secretary-treasurer.

### Roane County Medical Society

The regular monthly meeting was held at the Oak Ridge Hospital on January 27th. The scientific program was presented by Dr. Robert A. Davison, of the Department of General Practice, University of Tennessee College of Medicine. His subject was, "Formal Education for General Practice."

### Consolidated Medical Assembly

The society met on January 6th at the New Southern Hotel in Jackson. Dr. John Thornton, Jr., Brownsville, was elected president. Other officers named were Dr. W. H. Brooks, Jackson, first vice-president; Dr. E. E. Edwards, McKenzie, second vice-president; Dr. Eugene C. Crafton, Trenton, third vice-president. Dr. G. B. Wyatt, Jackson, was elected secretary-treasurer and Dr. W. G. Crook, assistant secretary.

The scientific program was presented by Dr. Alys Lipscomb, of the Department of Medicine at the University of Tennessee. The topic was, "Clinical Use of Isotopes." The discussion was led by Dr. James Phillips of Jackson. Dr. Edward N. Stevenson, of the Department of Surgery at the University of Tennessee, spoke on "Surgery in the Newborn." The discussion was led by Dr. F. E. Williamson.

### Memphis-Shelby County Medical Society

The society met in regular session on November 4, in the auditorium of the Institute of Pathology. The scientific program consisted of a paper by Dr. Joseph K. Bradford of the Ochsner Clinic, New Orleans, who spoke on "One Pathway to Obstructive Emphysema." The program was sponsored by the Shelby County Tuberculosis and Health Association. Dr. Duane M. Carr has been named president-elect to take office in 1960.

tion has been reviewing the situation and the possible need for Congressional action on federal aid to the country's medical schools.

Just how strong its case is likely to be determined in the session of the 86th Congress now underway. In the closing phases of the 85th Congress, a health subcommittee of the House took up the subject amid a feeling at that time that proponents had failed to achieve a sense of urgency.

Another year has rolled around, and the climate may be different. The Bayne-Jones report revived the medical school aid issue. Not since the six-year old report from the Magnuson Commission has a medical report been quoted so extensively. The Bayne-Jones report calls for a doubling of medical research spending by 1970 and the immediate start on at least 14 new medical schools.

Secretary Flemming of Health, Education, and Welfare let it be known soon after taking office last summer that he was not going to allow the report to be "put on the shelf to gather dust."

In an address to the American College of Surgeons, Surgeon General Leroy Burney sketched briefly a plan for another consultants' group not unlike the Bayne-Jones Committee. It is now looking into the question of need for more physicians in the next decade. No date has been set for the final report. At its first meeting in December, the committee authorized two staff studies to get underway:—on construction costs of new schools and on the financing of present-day medical school operations.

Chairman of the group is Frank Bane, former executive secretary of the Council of State Governments and active in public affairs for more than 30 years. Other members include Dr. Edward L. Turner, of the A.M.A. Council on Medical Education and Hospitals; Dr. Ward Darley, Association of American Medical Colleges; Dr. Julian Price, A.M.A. trustee; Dr. Edwin L. Crosby, American Hospital Association; Dr. Vernon Lippard, Yale Medical School dean; John McK. Mitchell, Pennsylvania Medical School dean; Dr. Isador S. Ravdin, Pennsylvania's vice-president on medical affairs; Dr. Clayton G. Loosli, Southern California Medical School dean; Dr. Charles E. Smith, Univer-

## NATIONAL NEWS

### The Washington Scene (From the AMA Washington Office)

Since the release last summer of the much-discussed Bayne-Jones report on medical education and research, the Administra-



sity of California, Public Health School dean; Morris Thompson, president, Kirksville College of Osteopathy and Surgery; Harold Hillenbrand, D.D.S., of the American Dental Association; Miss Marion Sheahan, National League for Nursing; Dr. Harold L. Enarson, Western Interstate Commission for Higher Education; Emory Morris, D.D.S., president, Kellogg Foundation; Douglas E. H. Williams, Dunbar Community Association; Fred C. Cole, Ph.D., Tulane; Robert C. Anderson, Ph.D., director, Southern Regional Education Board; Alvin C. Eurich, Ph.D., vice-president, Fund for the Advancement of Education; John G. Searle, president, G. D. Searle & Co.; and the Very Rev. Robert J. Slavin, president, Providence College.

Its final report in all likelihood will have a strong influence on the course of legislation.

### Federal Workers Health Insurance Plan

Federal workers contributory health insurance proposal has taken a new lease on life. The AFL-CIO Government Employees Council which speaks for half a million civilian employees is suggesting the following: (1) the U. S. would pay for two-thirds of basic insurance up to a maximum contribution of \$14 a month; the worker would pay the balance and could also broaden coverage for himself and family by paying the extra cost himself, (2) there would be a choice of basic insurance such as commercial, Blue Cross, Blue Shield, or employee union plans, (3) the government would pay the full cost of major medical insurance but the worker would have to have basic coverage; catastrophic coverage would meet 75% of costs.

Congress has failed in past years to enact legislation. Among the reasons has been failure of the various interested groups to get together on a single bill.

### Labor Victories Portend Bold Drive for Health Legislation

In a recent issue of "Washington's Stethoscope" it was reported that the bitterly controversial issue of federal medical care insurance seems to be on the increase. The following developments are largely respon-

sible: (1) organized labor's victories in the recent elections, (2) continued increases in consumer cost for health services, and (3) mounting concern for welfare of the aging population. While the congressional election sent many conservative House and Senate members to defeat and proved victorious for candidates with liberal outlooks, they turned up no ardent champions of "socialized medicine." It will be interesting to see what measure is taken to counter the trend toward more government medicine.

### Consumer Health Care Cost

The American public is spending increased sums for total health care, but it means more in terms of living costs and in cost increases. The Health Information Foundation, a non-profit research organization, recently released findings on consumer spending for medical care through 1957. The results showed:

*Hospital care costs*—From 13.7 cents of the medical care dollar in 1929 up to 25.8 cents in 1957, the number one cost factor.

*Physicians' fees*—From 32.6 cents down to 24.5 in 1957. Even though more people spend more in doctors' fees, the physicians get a smaller portion of the total.

*Hospital, surgical and medical insurance*—Up from 3.7 cents to 7.1, the biggest jump on the scale. Total consumer insurance outlay increased 1,000% in the period studied.

*Drugs*—Like insurance, amounts spent have streaked upward but portion of medical care dollar has stayed almost constant at 20.6 cents. New drugs produce better therapeutic results while decreasing in cost.

*Other health services*—The remaining 22 cents include dental, nursing, and rehabilitative services, prosthetic appliances, and miscellaneous items. Dentists' share is down and others are up.

Since 1929, the average disposable personal income (after taxes) has increased 300% but the portion of income expended on medical care went up less than 40%. In 1929, granting there was less to purchase in health services than today, medical care costs amounted to 3.5%; in 1957, 4.9%.



## MEDICAL NEWS IN TENNESSEE

### Memphis-Shelby County Medical Society Seeks Information on National Foundation

The Memphis and Shelby County Medical Society wants to know more about the policy of the National Foundation in regard to patient care under its new expanded program. A committee appointed by the Society and headed by Dr. Alvin J. Ingram discussed the problem with Dr. G. Foard McGinnis, the medical consultant at large for the Foundation. Dr. Ingram's committee is composed of Drs. Gilbert J. Levy, Moore Moore, Jr., and Roy A. Tyrer, Jr. Other officers of the society participated in the discussions.

The National Foundation, formerly the National Foundation for Infantile Paralysis, will continue work with polio but plans to expand its patient care and research work into the fields of arthritis, birth defects and other conditions of the central nervous system.

It was reported that, "The Foundation is entering into the fields of many chronic and crippling conditions that affect 20 to 25 per cent of the population." The Society wants to know the exact policy as regards patient care. The Committee asked Dr. McGinnis to explain what services will be provided and who will provide them, who will be eligible for the services and who will determine eligibility for services.

### A.M.A. Benefits

In answer to questions regarding A.M.A. membership: 1. A.M.A. membership is not compulsory; 2. members receive a subscription to the *Journal* of the A.M.A. or to any one of nine specialty journals; 3. A.M.A. makes an objective medical evaluation of all new drugs; 4. A.M.A. carries on investigations to expose quackery and fadism in medicine; 5. The Washington office supplies accurate information to legislators and physicians on the hundreds of bills introduced yearly in Congress relative to public health and medicine; 6. The Law Department coordinates and supplies information to local medical associations and members on legal problems of medicine, including malpractice

suits; 7. A.M.A. is the only national organization which speaks for all physicians belonging to state societies. Your delegates in the A.M.A. House of Delegates represent you, and thus every A.M.A. member has a voice in its policies; 8. in addition to the regular A.M.A. scientific meetings, a vast amount of free help in the technical field, and in the socio-economic and public relations areas is available, both as literature and information, to all medical societies and individual A.M.A. members.

### Immunizations

At a recent meeting of the Public Health Council, there came before the Council the question of the vaccination of the public against certain of the communicable diseases. After a lengthy discussion of immunizations, this motion was presented.

"That the Public Health Council recommend to the presidents of all medical societies (State and Local), that whatever committee is responsible for public relations be encouraged to point out the problem by press, radio, television, and word of mouth, in urging that children be immunized against communicable diseases."

This discussion revolved principally around diphtheria, whooping cough, tetanus, and poliomyelitis. A check on the per cent of children under five years of age immunized against these diseases indicates that while a large number of children are being immunized, the total falls far short of the 60% or more required to prevent a serious epidemic once the population is seeded with a virulent organism.

### University of Tennessee College of Medicine

The University of Tennessee Medical Units in Memphis have trained almost half of the physicians and about two-thirds of the dentists practicing in Tennessee. A recent report revealed that approximately 1600 physicians practicing in Tennessee received their doctor of medicine degrees from the UT College of Medicine.

Graduates of the University are practicing in every state in the union except Vermont, and some are in foreign countries. Aside from Tennessee, the largest number of graduates are in adjoining states.

Another report from the University of Tennessee Medical Units states that doctors are less plentiful in West Tennessee than the national average. The report said there is one physician for every 804 persons across the nation, but in West Tennessee, exempting Shelby County, the figure per physician ranges from 1000 in Obion County to 4425 in McNairy.

The report further stated that Shelby County has one doctor for every 605 persons. The over-all Tennessee average is one doctor for 999 persons.

★

Dr. Frank L. Roberts, associate dean, will go to Iran for two years as consultant in medical education at the University of Shiraz. He will leave in March.

Dr. Roberts is the chairman of the TSMA Committee on Postgraduate Education.

★

A one million dollar research grant for a five year study on the prevention of brain damage has been given by the National Institute of Neurological Disease and Blindness, U. S. Public Health Service. This is the largest grant ever made to the Medical Units. The funds will be available at the rate of more than \$200,000 per year. The study will involve close cooperation between several departments in the college, and more than 40 people will be on the research team. About 750 women and their babies in units of the City of Memphis Hospitals will be studied for five years. The study will search for the causes of brain damage occurring during pregnancy and at birth for possible new insight into mental retardation, cerebral palsy, epilepsy and other related conditions. The program is a part of a nationwide project in which 14 other medical schools are participating. More than 60,000 pregnant women and their infants will be studied during the five year period.

★

Dr. Amos I. Chernoff has been named a member of the Cancer Chemotherapy Study Section of the National Institutes of Health at Bethesda, Maryland.

★

Fifteen staff promotions and three appointments were announced recently. Promoted from instructor to assistant professor

in the Department of General Surgery were Drs. C. Frank Yates, William T. Tyson, Robert M. Miles, L. H. Mayfield, George Livermore, Jr., Edward French, William David Dunavant, Francis Cole, and J. Malcolm Aste. Promoted from assistant to instructor were Drs. John Hall, R. J. Stubblefield, Frank Smythe, Jr., J. D. Pigott and Anthony P. Jerome. Appointed assistants in surgery were Drs. Sam Hunter and William S. Ogle. Dr. Robert Anthony was promoted from assistant to instructor in the Department of Ophthalmology. Dr. W. Wiggins Wilder was appointed an assistant in Ophthalmology. Dr. Nobel W. Guthrie has been named assistant professor in Preventive Medicine. Drs. Wendell L. Whittimore and B. G. Mitchell have been named assistants in the Department of Orthopedic Surgery.

★

The Department of Medical Laboratories has announced the appointment of Dr. Gerald I. Plitman as St. Jude Fellow. Funds to begin research on leukemia and allied diseases came from a \$10,000 grant from Plough, Inc., to St. Jude Hospital Foundation.

★

Dr. Michael Klein, of the Department of Anatomy, has been awarded a \$69,000 grant by the U. S. Public Health Service to investigate means of altering the course of skin cancer development in mice.

★

Dr. James Spencer Speed, a member of the staff since 1926, and head of the Department of Orthopedic Surgery since 1941, has resigned his administrative duties but will continue as professor in the department.

The position as head of the department will be taken by Dr. Harold B. Boyd.

### Why Medicare Forms Must Be Completed

Correct completion of Medicare forms has long been a problem. There is no easy answer; the claims must be complete in all details. However, the problem no longer terminates at this point. Since the restrictions of October 1, 1958, many additional statements must be made, and often permits must be submitted before the claim can be considered complete and processed for payment.



Perhaps the ultimate reason for the rigid completion of claims lies in the governmental nature of the program. All disbursements of public funds must be authorized by congressional appropriation. To insure that only disbursements are made within the law, Congress attaches certain administrative regulations. The funds are then made available to an executive agent, in this case the Office for Dependents Medical Care, Department of the Army. This executive agency in turn establishes state disbursing agents with authority to write checks against these funds, provided that the regulations are strictly obeyed.

The ground rules for administrative regulations are, of course, passed on down the line until they reach the individual doctor.

The public law authorizes care for specified persons. It also requires certain statistical data be submitted to Congress so that the expenditures may be justified to the taxpayers.

The law further provides that duly licensed physicians may be paid for the authorized types of care. Claim form items 15-23 provide this information and assures the taxpayer that only money within the intent of Congress is paid to persons authorized to render such care.

The physician is also asked to make his normal charge as he would to a private patient with an annual income of \$4,500. He must certify that he will comply with the full service feature of the program,—that is, he will accept the Medicare fee as full payment. Although this is not a specific part of the law as such, the Department of Defense Directive has made it so; therefore, claim form items 24-29 must be completed.

Completion of claims should be of prime interest to all doctors to protect themselves as well as the interests of the taxpayers. Above all one should remember that the requirements of the program are those of the government and not of the Tennessee State Medical Association.

## PERSONAL NEWS

**Dr. Luby Jones**, Memphis, announces the opening of his office for the practice of general surgery at 899 Madison Avenue.

**Dr. J. Wesley McKinney**, Memphis, has been named president of the medical staff at the Memphis Eye, Ear, Nose and Throat Hospital. Other new officers are **Dr. Alice Deutsch**, vice-president and **Dr. Eugene Vacarro**, secretary.

**Drs. John Lentz, O. N. Bryan, John Lee, R. W. Billington, L. J. Caldwell** and **H. P. Rieger**, all of Nashville, were recently presented pins in recognition of fifty years in the practice of medicine. The presentations were made by **Dr. James C. Gardner** of Nashville.

**Dr. Ralph H. Shilling**, Gatlinburg, has been named health officer for Sevier County.

**Dr. W. E. Boyee**, Hohenwald, has announced his retirement from active practice.

**Dr. Albert B. Qualls**, Livingston, has been named Tennessee State Chairman for the National Foundation for Muscular Dystrophy.

**Dr. R. H. Harvey**, Erwin, has been elected coroner for Unicoi County.

**Dr. Gilbert Varnell**, Cleveland, was recently the guest speaker before the Cleveland Woman's Club.

**Dr. R. B. Wood**, Knoxville, addressed the East Knoxville Kiwanis Club in behalf of the East Tennessee Heart Association.

**Dr. C. B. LeQuire**, Maryville, addressed the Blount County Registered Nurses Association at a recent meeting.

**Dr. J. Shelton Reed**, Kingsport, has been elected a director of the First National Bank, of Kingsport.

**Dr. R. F. Lash**, Knoxville, spoke recently before the West Haven Parent-Teacher Association on the subject "Poisons Found Around the Home."

**Dr. W. R. Sullivan**, Bells, has been named president of the Crockett County Unit of the American Cancer Society.

Newly elected officers of the St. Thomas medical staff are the following Nashville physicians: **Dr. Joe Anderson**, president-elect; **Dr. Robert McCracken**, president and **Dr. Russell T. Birmingham**, secretary-treasurer. **Dr. Thomas F. Frist** is the retiring president.

**Dr. Chas. C. Trabue, IV**, Nashville, spoke before the State Dental Association Workshop meeting in Nashville. His subject was "Medicine's Approach to Health Education of the Public."

**Drs. Merrill Nelson, Minnie Vanee** and **Clarence Conner**, Chattanooga physicians, recently participated in a television program sponsored by the Chattanooga-Hamilton County Health Council.

**Dr. David Rutledge**, will be associated with **Dr. W. C. Keeton** at the Boyce Clinic in Hohenwald.

**Dr. M. R. Beyer**, Martin, recently addressed the Martin Health Council.

**Dr. Lewis F. Preston**, Oak Ridge, has been named chairman of the Chamber of Commerce membership drive.

District 2, Tennessee Nurses' Association recently heard **Dr. James B. Ely**, Knoxville, discuss cancer detection.

Officers of the staff of Memorial Hospital for 1959 are the following Chattanooga physicians: **Dr. Frank S. Brannen**, chief-of-staff; **Dr. Charles**



**L. Suggs, Jr.**, vice-chief; and **Dr. John M. Higga-son**, secretary.

**Dr. Gordon L. Hixson**, Chattanooga, has joined Hutcheson Memorial Hospital at Fort Oglethorpe as head of its department of radiology.

**Dr. Harwell Wilson**, Memphis, recently participated in a sectional meeting of the American College of Surgeons in Charleston, South Carolina.

The new chief-of-staff at Knoxville Baptist Hospital is **Dr. Richard C. Sexton**, who succeeds **Dr. Charles Zirkle**. Also elected at the annual dinner of the hospital were **Dr. Jack Chesney**, vice-chief-of-staff; **Dr. Homer Ogle**, secretary. Others elected to heads of departments are **Dr. Alvin Weber**, general practice; **Dr. John Hall**, surgery; **Dr. Dan Davis**, medical; and **Dr. K. A. O'Connor**, obstetrics.

**Dr. W. H. Avery**, Shelbyville, was recently given a special citation by the Lions Club.

**Dr. B. M. Overholt**, Knoxville, has been re-elected chief-of-staff of St. Mary's Hospital; **Dr. O. E. Ballou** was elected vice-chief-of-staff succeeding **Dr. Joseph Raulston**; **Dr. J. E. Acker** was named secretary-treasurer.

**Dr. L. M. Donalson**, Fayetteville, has been named president-elect of the Lincoln County Medical Society.

**Dr. Eugene Haun** has been re-elected chief-of-staff at Presbyterian Hospital in Knoxville.

**Dr. D. A. Sanders** announces the opening of his office for the practice of medicine in Gallatin.

**Dr. Carl T. Kirchmaier**, Nashville, has been named chairman of the 1959 heart fund campaign for Middle Tennessee.

**Dr. Warren Rutledge**, formerly of Lewisburg, has moved to Camden, Alabama.

**Dr. Hammond Pride**, Knoxville, recently spoke on "Epidemic Diseases of Childhood" at a meeting of the Women's Auxiliary to the Knoxville Academy of Medicine.

**Dr. Gabriel L. Paseal, Jr.**, Jackson, has been named to the Jackson-Madison County General Hospital staff as associate radiologist.

**Dr. Ralph O. Rychener**, Memphis, was re-elected President of The National Medical Foundation for Eye Care by the Foundation's Board of Trustees, at their recent Annual Meeting in Chicago.

**Drs. Walter Pyle, Adolphus Bray and William Encke**, Franklin, have opened the new Medical Arts Building.

During this time much clinical and laboratory work has been done, and many studies have been published to explain the cardiorespiratory effects and other peculiarities of this agent. This additional work has been compiled and brought up-to-date.

According to the author, "the present edition retains thirty-six of the old figures to which thirty-eight new ones are added; thirty-nine of the old tables with fifteen new ones added; and the present bibliography includes about one hundred seventy-five new titles of the more significant reports that have been made since 1939." A new chapter on the relaxing agents has been added.

This monograph is recommended for all who administer this agent. For those who wish to read further, the bibliography is excellent.

LEE W. STEWART, M.D.

## ANNOUNCEMENTS

### A.M.A. Medicolegal Meetings

The A.M.A. will again sponsor three regional medicolegal meetings: Washington, D.C. on March 20-21; Cleveland, Ohio on April 3-4; and Salt Lake City, Utah on April 17-18. These sessions will be of especial interest to doctors and lawyers. Subjects to be included are: Medical and Legal Problems Involved in Narcotic Addiction, Traumatic Neurosis, The Approach of Medicine and the Law to Contingent Fees, Impartial Medical Testimony, and The Classic Method of Cross Examining an Expert Medical Witness. Registrations and requests for additional information should be mailed to the AMA, Law Division, 535 North Dearborn Street, Chicago 10, Illinois.

### Postgraduate Course in Obstetrics and Gynecology at Vanderbilt University School of Medicine

The Department of Obstetrics and Gynecology at Vanderbilt University School of Medicine announces another Postgraduate Day for Thursday, March 19, 1959, beginning at 9:00 a.m. The recognition and management of common obstetric difficulties and the current concepts of several gynecologic disorders will be discussed. The course is approved for 7 hours of Category I credit by The American Academy of General Practice. Tuition is \$15.00 which includes the luncheon. For further information address the Department of Postgraduate Instruction, Vanderbilt University School of Medicine.

### Gill Memorial Eye, Ear and Throat Hospital

The Thirty-Second Annual Spring Congress in Ophthalmology—Otology—Rhinitis—Laryngoscopy—Maxillofacial Surgery—Bronchoscopy and Esophagoscopy will be held at the Gill Memorial Eye, Ear and Throat Hospital on April 6-11, 1959, at Roanoke, Virginia. For further information write Dr. E. G. Gill, Box 1789, Roanoke, Virginia.

## BOOK REVIEW

**Cyclopropane Anesthesia.** By Benjamin Howard Robbins, B.A., M.S., M.D., Professor of Anesthesiology and Associate Professor of Pharmacology, Vanderbilt University School of Medicine, Anesthesiologist-in-Chief, Vanderbilt University Hospital. 293 Pages. Baltimore, Md., The Williams and Wilkins Company, 1958. Price \$9.00.

This second edition, by a well-known authority, fills an eighteen year interval since the first treatise on this anesthetic. Cyclopropane has continued to merit a steady increase in popularity.

# Journal of the Tennessee State Medical Association

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Cancer of the thyroid gland has certain idiosyncracies not encountered in other carcinomas. These influence the selection of treatment at times. This Symposium attempts to portray some aspects of diagnosis and treatment.

## Symposium: Carcinoma of the Thyroid\*

### INTRODUCTORY REMARKS

*Moderator:* J. D. MARTIN, JR., M.D.,<sup>†</sup> Atlanta, Ga.

There have been varying concepts in regard to the relative frequency, the degree of malignancy and the overall seriousness of carcinoma of the thyroid. There are essentially two fundamental differences concerning this condition. The one assumes that these lesions are basically the same as carcinoma in other parts of the body, and the second contends that there are various degrees of malignancy, some of which are slow in development and may never be lethal. Both opinions are partially correct, but neither gives a complete interpretation. It is well known among the authorities that many patients have the disease for years and finally succumb to some other condition. On the other hand, carcinoma of the thyroid may rapidly progress and the outcome be hopeless in spite of treatment.

It is essential that an early diagnosis be made and that adequate therapy be instituted for the individual patient. This, of course, cannot be done except after proper diagnostic studies which usually consist in removal of the gland for microscopic confirmation. The nodular lesions in the thyroid, particularly the single ones, should be viewed with suspicion. Those who take the opposite view contend that only a very small number of nodular lesions in the thyroid are malignant. In fact, so small a number that by nature of the course of the disease, mortality compares with that following the removal of nodules, whether they

be single or multiple. Unfortunately, the two opinions are presented by men of considerable experience and, naturally, this confuses the physician who of necessity must see a limited number of patients with this condition.

Regardless of the concept of the disease, there are arguments in favor of both methods of approach, and treatment can be established after careful evaluation of the degree of involvement. Surgical treatment is perhaps the most acceptable, but this too falls short of the ideal. There are some internists who feel that administration of desiccated thyroid to most patients having nodular lesions will control them and prefer a period of treatment before advocating surgery. It is not considered correct judgment to proceed without knowing the type of lesion involved. It is obvious that an early diagnosis cannot be proved by clinical means alone.

Radiation is utilized in recurrent and advanced disease, but not as the primary method of choice. The role of radioiodine as the primary treatment has certain limitations. Its greatest benefit probably rests in the control of the recurrent or distant recurrences and as an adjuvant to surgical removal. It should be re-emphasized that the single nodular lesion, especially in the young person, constitutes the real concern. The problem primarily is to determine when a true benign lesion exists, or when the lesion is a malignant one. It is safer, therefore, to proceed on the basis that all solid, firm, single nodules are malignant, until proved otherwise. The manner of treatment should be to remove the lesion with the en-

\*Presented before the meeting of the Tennessee Chapter, American College of Surgeons, April 21, 1958, Gatlinburg, Tenn.

<sup>†</sup>From the Department of Surgery, Emory University School of Medicine, Atlanta, Ga.



tire involved lobe. If the nodule alone is removed, and should it prove malignant, it is obvious that inadequate removal has been made. A subsequent operation to extend further the scope of removal is never totally satisfactory.

It is accepted by most investigators that removal of the thyroid, followed with or without neck dissection, is the method of choice. Since there are various types of lesions, there will be different forms of treatment. There are some who recommend a more radical attitude towards all of these lesions, with extensive node dissection, but

this has done little to improve the final results in all forms of malignancies of the thyroid. In the rapidly growing lesions, metastases are frequently seen in distant areas and neck dissections contribute little. The slow growing lesions may have regional nodes for a long time. This does not mean that they should not be removed by the accepted methods of treatment. The approach must be to proceed cautiously and to determine the preferable method of treatment for the individual patient. A positive attitude is essential if cure or control of this disease can be expected.

## CANCER OF THE THYROID\*

BARTON McSWAIN, M.D., LAWRENCE S. McGEE, JR., M.D., AND  
ROBERT T. SESSIONS, M.D.,† Nashville, Tenn.

### Relative Frequency

In the Vanderbilt University Hospital from 1925 through 1957 1814 specimens of thyroid tissue were received in the Surgical Pathology laboratory. Five hundred sixty-six, or nearly one-third of these were neoplasms, 507 having been nontoxic adenomas, 8 carcinomas and one fibrosarcoma. Thus, cancer makes up 3.8% of the thyroid specimens removed. From 1925 through 1946 only 2.2% of the surgical specimens were malignant, whereas from 1947 through 1957, 6.0% were cancer. One reason why the percentage of cancer is higher in recent years, is that fewer specimens of hyperplastic goiter are being received now than previously. Microscopic sections of cancer of the thyroid from 4 patients not operated upon in this hospital but subjected to post-mortem examination have been examined by us, making a total of 73 cancers of the thyroid.

There were 58 females and 15 males in this series. Ages ranged from 12 through 76 years, there having been from 5 to 15 patients in each decade from the second through the eighth.

Carcinoma of the thyroid is not rare in children. Winship<sup>2</sup> in 1955, was able to find

285 cases of carcinoma of the thyroid in children under 15 years of age.

### Symptoms

The chief symptom in a patient with carcinoma of the thyroid is a lump in the neck. It may have been present only a short time, may have been thought by the patient to have been present, unchanged, for a long time, or may have showed slow increase in size for many months or a rapid increase for a few weeks. There may be symptoms of pressure upon the trachea and there are rarely symptoms of pressure upon the esophagus. If the hoarseness of paralysis of the recurrent laryngeal nerve is present, the lesion is usually malignant. Although we have had 2 patients with co-existing hyperthyroidism and one with hypothyroidism, it is rare for either entity to accompany carcinoma. If either does occur, it is usually co-incidental because carcinomas of the thyroid rarely are hyperfunctioning and hardly ever destroy enough thyroid to give symptoms of hypothyroidism. In each of 3 patients a node in the neck at some distance from the thyroid was the chief complaint and neither patient nor examiner could feel a tumor in the thyroid.

### Signs

In carcinoma of the thyroid the enlargement is usually not diffuse. In most instances there is a single nodule or the gland is multinodular. Although one nearly al-

\*Read before the meeting of the Tennessee Chapter, American College of Surgeons, April 21, 1958, Gatlinburg, Tenn.

†From the Departments of Surgery and Pathology, Vanderbilt University School of Medicine, Nashville, Tenn.



ways thinks of the consistency of epithelial malignancy as being hard, in many cases the tumor is not hard but firm and in a few instances it is actually soft. In some patients with lymph node metastasis the carcinoma of the thyroid may not even be palpable. In over half of the patients with carcinoma of the thyroid the correct diagnosis is not made before operation.

Pathologic Changes

Two comments worthy of making about the gross appearance of the carcinoma are that in many instances it is indistinguishable from an adenoma and that the consistency is not by any means always hard. The microscopic types of malignancy are as follow: Most carcinomas are adenocarcinomas. We classify the adenocarcinomas as pure, papillary and alveolar. In addition, the giant cell carcinoma is really an adenocarcinoma with extremely large malignant giant cells and poor differentiation. The other types are alveolar, small-cell and squamous. We have had examples of all except the so-called small-cell type. Sarcomas of the thyroid are very unusual and the only ones which occur with any degree of frequency are fibrosarcoma and lymphosarcoma.

The spread of carcinoma of the thyroid is not only by lymphatics but by way of the blood stream. Pulmonary and osseous metastases occur in a fairly high per cent of unsuccessfully treated carcinomas of the thyroid, probably because of the relatively early invasion of veins by such tumors, and also possibly because of the proximity of the thyroid to the thoracic and right lymphatic ducts.

Course

The outlook in carcinoma of the thyroid is best if the tumor is papillary and worst if it is the giant cell type. In general the prognosis is better in young individuals than in old ones. Shofner<sup>1</sup> gave the results 5 years after treatment of 25 patients. All 10 who were below 50 years of age were alive, whereas, of 15 patients over 50 years old only 5 were alive. Winship<sup>2</sup> stated that in carcinoma of the thyroid in 285 children under 15 years of age "48 or 16.7% of the entire series died of their disease."

Results

In a subsequent report we hope to give the results in all 73 patients, giving the exact lengths of survival, whether or not the ones who did not survive died of the tumor and whether or not the ones surviving are free of tumor. At present we have been able to follow all but 6 of our 73 patients with cancer of the thyroid. The results in 67 patients are shown in the accompanying tables. In table 1 it is seen that the outlook is better in patients under 50 than in the older age group, since nearly three-fourths of the former and only about one-fourth of the latter are alive. Table 2 shows that in the papillary type of carcinoma slightly over two-thirds of the patients are alive in contrast to only two-fifths of those with other types of cancer. Table 3 shows that our over-all survival rate is 52 per cent. In patients under 50, with types of cancer other than papillary, the outlook is better than in such patients 50 and over, since 9 of 23 are still alive in the younger group as contrasted to only 2 of 17 of the older patients. The prognosis is better in papillary carcinoma in patients 50 and over than in other types of cancer in those individuals, 5 out of 12 of the former surviving in contrast to only 2 of 17 in the latter. However, the most striking fact brought out in table 3 is the excellent prognosis in patients under 50 who have papillary carcinoma, of whom 14 of the 15 are still alive.

Table 1

Age	Total	Alive	Dead
12-49	38	28	10
50-76	29	7	22

Table 2

Age	Total	Alive	Dead
Papillary	27	19	8
Other	40	16	24

Table 3

Age	Papillary		Other	
	Alive	Dead	Alive	Dead
Under 50	14	1	14	9
50 or over	5	7	2	15

References

1. Shofner, N. S.: Malignant Tumors of the Thyroid, *Am. Surgeon* 17:1025, 1951.  
2. Winship, Theodore, and Chase, William W.: Thyroid Carcinoma in Children, *Surg. Gynec. & Obst.* 101:217, 1955.

## THE TREATMENT OF THYROID CARCINOMA\*

ROBERT R. BIGELOW, M.D., Oak Ridge, Tenn.

In 1949, the Oak Ridge Institute of Nuclear Studies Medical Division was established by the Atomic Energy Commission in Oak Ridge, Tenn. This combined hospital and research facility was developed for the treatment and study of malignant diseases with radioisotopes. At the present time 35 Southern universities and 29 medical schools support and participate in its program, and supply its hospital with clinical material. Since its formation I have been associated with the hospital staff as a surgical consultant. A good deal of my effort has been devoted to the treatment of patients with thyroid carcinoma. The attitudes and conclusions resulting from this experience have been incorporated in this paper.

We believe that all patients with nodular goitre who are being operated upon should have a tracer dose of  $I^{131}$  twenty-four to forty-eight hours prior to operation. This will permit autoradiography and radioassay of the excised tissue. This tracer dose is harmless and, if a thyroid carcinoma is found, in some cases an estimate of the functional activity of the cancer will be given even in the presence of normal thyroid activity. This information is often invaluable for planning later therapy.

It might be well to review the general information about  $I^{131}$ . This is an isotope of iodine with a half life of 8 days and which gives off both beta and gamma radiation. Most of the destructive effect to tissue is due to the beta rays. The gamma rays are helpful for external counting and surveys. The  $I^{131}$  is usually given orally and is taken up from the stomach into the blood stream from which it is rapidly removed. Usually 90% has left the blood within 24 hours in an average person. The activity is then concentrated in the thyroid, the amount depending largely on the functional capacity of the gland. Most of the remainder is excreted, predominately by the kidneys.

There has never been any evidence of damage to the parathyroids from  $I^{131}$ . In cases where therapeutic doses of  $I^{131}$  are being used the gamma total body irradiation may well cause bone marrow damage, and careful hematologic studies must be carried out during therapy.

Incidentally, we are often asked to do  $I^{131}$  uptake studies on patients who have had partial thyroidectomies for thyroid carcinoma. There seems to be a widespread belief that metastases can be detected in this manner. Unfortunately, such studies usually are not revealing, since metastases in lymph nodes or elsewhere rarely show much uptake if any normal thyroid is present. In rare cases, the scintiscanner may show neoplastic involvement of the remaining lobe, the tumor being hypofunctional in relation to the adjacent thyroid tissue.

In considering the treatment of known thyroid carcinoma one must group the cases as to whether or not they are completely resectable. In the former group there is only one treatment and that is surgical excision. In the latter group the therapy depends on their biologic characteristics and their ability to concentrate radioiodine.

In the treatment of inoperable thyroid carcinoma the histologic type is especially significant. The well differentiated lesions follicular with colloid—should usually be treated with total thyroidectomy and radioiodine. In the moderately well differentiated lesions—solid, alveolar, and mixed papillary and follicular types—the choice of treatment may be difficult. One cannot predict in advance whether radioiodine will be taken up by the tumor, and total removal or destruction of the normal thyroid may be required before this can be determined. It may not be practical in all cases to carry out these rather formidable studies. However, if adequate iodine uptake in the lesions can be induced after total thyroidectomy, radioiodine should be used. If iodine uptake is not sufficient, x-ray therapy and/or palliative surgery should be used.

After surgical or medical thyroidectomy one does not wait for myxedema to develop. If a functioning metastasis is present this

\*Read before the meeting of the Tennessee Chapter, American College of Surgeons, April 21, 1958, Gatlinburg, Tenn.

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may never develop. In two to three weeks after operation one gives a test dose of radioactive iodine, and if there is good concentration in the lesion one follows this with a therapeutic dose of  $I^{131}$  of from 30 to 200 millicuries. In cases where definite uptake is present, repeated doses are given until the lesions cease concentrating the isotope or it becomes apparent the treatment is unsuccessful. If little or no uptake is obtained after the first tracer dose, uptake can sometimes be stimulated by using thiouracil and/or thyroid stimulating hormone. Unfortunately, the cases are rare in which uptake in metastases is high enough to accomplish regression. However, some remarkable cases of disappearance of lung metastases, replacement of bone lesions by fibrous tissue, and improvement of neurologic symptoms in the presence of brain metastases have been reported.

When dealing with an inoperable tumor which takes up iodine, the so-called functional tumor, one should use  $I^{131}$  in the treatment. Statistical studies show that  $I^{131}$  has its usefulness in a relatively small group of cancers, predominantly alveolar and follicular, some solid tumors, and in the so-called mixed papillary and follicular types. These are the only ones which may

take up enough  $I^{131}$  to significantly alter their course.

After surgical treatment, where all the tumor has been removed, we do not feel that prophylactic  $I^{131}$  is indicated. In our hospital we demonstrate with tracer doses of  $I^{131}$  that we have an "inoperable lesion" which is taking up iodine before giving therapeutic  $I^{131}$  doses. Indiscriminate uses of  $I^{131}$  are not recommended.

#### Summary and Conclusions

1. Lesions that appear completely resectable should have surgical treatment.
2. Lesions that are not completely resectable, if
  - A. Well differentiated—follicular with colloid—should have total thyroidectomy and radioiodine therapy.
  - B. Moderately well differentiated—solid, alveolar, and mixed papillary and follicular—should have total thyroidectomy and radioiodine study. If good uptake can be induced,  $I^{131}$  therapy should be tried, otherwise, X-ray therapy and/or palliative surgery is the indicated treatment.
  - C. Undifferentiated—anaplastic carcinomas, giant cell, spindle cell, Hurthle cell, and sarcomas—should be treated with X-ray therapy and/or palliative surgery.

#### **The Advantages of Early Spine Fusion in the Treatment of Fracture-Dislocation of the Cervical Spine: Forsyth, H. Francis, Alexander, Jr., Eben, Davis, Jr., Courtland, and Underdal, Robert, J. Bone & Joint Surg. 41-A:17, 1959.**

Analysis of a series of 84 cases of fracture-dislocations of the cervical spine has allowed the authors to arrive at some very definite conclusions. In the treatment of cervical spine injuries, first consideration must be given to protection of the neural elements, therefore, whenever a cervical spine injury is suspected in a patient seen in the Emergency Room, five to seven pounds of head-halter traction is applied before moving the patient for radiograms. If there is an obvious cervical injury with neurological involvement, fifteen to twenty pounds of skull traction is applied in the Emergency Room by means of Crutchfield tongs before any X-ray examination is made. To explore this basic premise further, the authors wish to relieve all pressure from the spinal cord and nerve root, feeling that this is best done by an accurate reduction of the bony fragments. This reduction can usually be accomplished by closed means, but if reduction of the fractures or relief

of pressure symptoms cannot be accomplished early, then surgical intervention is mandatory. The authors have no absolute indication for cervical spine fusion. Since the basic premise is protection of the neural elements, they feel that any injury which later may lead to instability is an indication for spinal fusion. These include fractures of the odontoid process with displacement, ruptures of the transverse ligament of the atlas with atlanto-axial dislocation, fracture-dislocations with one or both articular processes fractured. Operation is done as soon as the patient's general condition permits, averaging thirteen days in the entire group. All patients are operated with Crutchfield tong-traction in place.

There are two groups in which cervical spine fusion is seldom required, these being flexion injuries with compression fracture of the anterior part of the vertebral body and extension injuries which are frequently associated with severe neurological deficit but show very little bony damage. Both of these injuries usually heal satisfactorily without fusion. (Abstracted by Thomas F. Parrish, M.D.)



## CASE REPORT

### MARFAN'S SYNDROME: Report of a Case in a Young Woman\*

Y. Nakamura, M.D., and Stewart H. Auerbach, M.D., Chattanooga, Tenn.

In recent years there has been increasing interest in degenerative arterial disease of all kinds. Although atherosclerosis has rightfully received most of the attention, a peculiar degeneration of the media of the aorta and great vessels, the medial necrosis of Erdheim, also has received some consideration. As a forerunner of dissecting aneurysm, the importance of this disorder is well recognized in middle-aged patients, especially males. It is also an occasional cause of cardiovascular disease and death in young individuals. These patients are almost always victims of a loosely defined complex originally described by Marfan<sup>1</sup> in 1896, and subsequently named for him. The disorder is familial and is manifested by multiple malformations, a fact which has led some to regard it as one of faulty mesodermal development.

A prominent skeletal change is one characterized by abnormal length and delicateness of the long bones, particularly the fingers and toes. This feature was pointed out by Marfan in his original description. Because of the spider-like appearance of the fingers, the term "arachnodactyly" was proposed by Achard<sup>2</sup> in 1902. The skeleton of the thorax also is frequently deformed, either as pectus excavatum or pectus carinatum. Ocular malformations, especially of the lens, are common and the hard palate is usually high and arched. Muscular development is poor and the joints are hypermobile. Many patients have cardiac abnormalities such as septal defects, valvular lesions or aneurysm of the aorta.

In 1951, Marvel and Genovese<sup>3</sup> summarized the findings in 29 cases of Marfan's syndrome coming to necropsy. The ages varied from 2½ months to 54 years and the highest incidence was in the second decade of life. There were 17 females and 12 males in the series. Eighty-nine percent of the patients had definite organic cardio-

vascular disease, and cystic medionecrosis of the aorta was demonstrated in 39 percent. A more recent review of the literature by Griffin and Koman<sup>4</sup> showed 55 collected cases with autopsy findings. Three additional cases were described by Pappas and co-authors.<sup>5</sup> Wilson's<sup>6</sup> report presented an interesting family study with multiple victims. Limited postmortem examination was performed on one of the male patients who died at the age of 26 years of aneurysm.

As yet, little can be done to impede the progress of the disease of the aorta. Avoidance of vigorous exercise has been recommended in several papers including one by Marks and Gerson.<sup>7</sup> Attempts at surgical correction of dissecting aneurysm have not been successful.

#### Report of a Case

The patient was a 17 year old white girl who was brought to the emergency room of The Baroness Erlanger Hospital on the afternoon of May 30, 1958. She was in a critical condition with severe dyspnea and intense precordial pain associated with nausea.

The history of the illness was sketchy. Apparently she was in her usual health until the day preceding, when she experienced precordial pain while swimming. The pain was not severe nor alarming and passed away. However, on the morning of admission she developed severe and persistent pain. The past history contributed little of note. She was an average student in high school. She engaged in basketball and swimming. Several months before all of her teeth were extracted for caries. The onset of menstruation was at 13 years. There were menstrual irregularities until she was 16 years old. It was stated she had lost some of her interest in social life in recent months. One week before admission she visited a physician for symptoms attributed to mild upper respiratory infection.

*Physical examination* in the emergency room was incomplete due to her critical condition. The blood pressure was 100/65 and the pulse rate was 100. An electrocardiogram revealed regular rhythm; the PR interval was 0.13 seconds, QRS was 0.07 seconds; T-1 was flat with diphasic minus-plus T-2, V-4 to V-6 and AVF with inverted T-3. The record was interpreted as definitely abnormal and compatible with pericarditis. X-ray examination of the chest showed cardiac enlargement, the CT ratio being 14 to 24 cm. The lungs were clear.

Her condition worsened rapidly. Intensive supportive treatment was ineffective and she died about two hours later.

*Necropsy.* The examination was performed a short time after death. The body measured 1.75 meters in length. Muscular development was

\*From the Department of Pathology, The Baroness Erlanger Hospital, Chattanooga, Tenn.

rather poor and the bony framework appeared relatively thin. Elongation of the extremities was notable. The fingers appeared especially long. There was an intense cyanosis of the nail-beds. Nothing unusual was observed in the subcutaneous tissues and skeletal musculature. The palate was not described. The bony thorax showed a typical pectus carinatum. The pericardial sac was greatly enlarged and was tensely filled with dark fluid and clotted blood. The amount was estimated at about 850 cc. The heart weighed 340 grams. Aside from relative dilation, the ventricular chambers appeared normal. The valve orifices and leaflets also appeared normal. The coronaries were patent.

Beginning just above the aortic cusps the posterior wall of the ascending aorta presented a bulging aneurysmal dilation about 6 by 4 cm. (Fig. 1.) The long diameter was in the perpen-

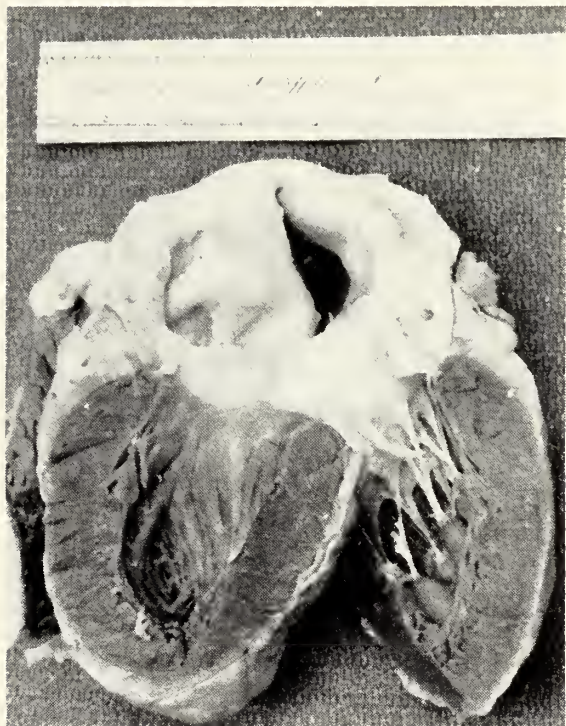


FIG. 1. The opened left ventricle and proximal aorta to illustrate the aneurysm with long intimal tear.

dicular axis of the aorta. The wall of this portion of the aorta was notably thin, a condition which was progressively more severe toward the center of the aneurysm. Here the wall seemed friable as well as thin and there was fresh intimal tear about 5 cm. long. The lining surface of the ascending aorta was uneven and in some areas appeared eroded. This feature was especially evident at the edges of the aneurysmal dilation. The layers of the media were easily separable and there was expanding blood in the wall of the aorta. The intrapericardial portion of the vessel was obscured by adherent clot but an adventitial perforation 0.5 cm. in size was found.

Other organs appeared grossly normal. The

ovaries were slightly enlarged and contained many cysts.

*Microscopic examination* of the heart showed a slight acute pericarditis. There was minimal edema of the myocardium; there was no appreciable hypertrophy of the muscle. Many sections from the proximal portion of the aorta showed a most remarkable medial degeneration. (Fig. 2.)



FIG. 2. Photomicrograph of the intrapericardial aortic wall showing cystic degeneration of the media and disruption of the intima near the right margin.

The process appeared to be one in which the smooth muscle component was primarily affected. In several sections, however, there was also loss of elastic tissue. The degeneration was further characterized by an accumulation of pale amorphous basophilic material which closely resembled mucin. In many areas the substance was abundant and occurred in small cyst-like deposits. In some of the sections the cystic areas were large, suggesting coalescence. Both muscle and elastic tissue were lacking in such areas. In the aneurysm there was a fairly abrupt loss of all laminae and the aortic wall was represented by remnants of muscle and connective tissue. At the site of perforation there was total necrosis of the wall with fresh hemorrhage. The extravasation separated the outer third of the media and also dissected the adventitia. In some sections the adventitia was slightly fibrotic and was acutely inflamed.

*Microscopic examination* of the other organs was generally within normal limits. It was noteworthy that the thymus was persistent with an abundant lymphoid tissue and well formed Hassel's corpuscles. The lungs showed slight collapse. The liver, pancreas, adrenals, kidneys and urinary bladder were normal. The spleen showed many infiltrating leukocytes, especially near the



follicles. The internal genitalia were not remarkable.

The anatomic diagnoses were: (1) Dissecting aneurysm of the aorta with rupture. (2) Hemopericardium, secondary to diagnosis No. 1. (3) Cystic medionecrosis of the aorta, severe.

### Summary

This describes the case of a 17 year old girl who suffered a rapidly fatal cardiovascular catastrophe. Postmortem examination disclosed dissecting aneurysm of the ascending aorta with rupture into the pericardial sac. There were also skeletal features indicative of Marfan's Syndrome.

### References

1. Marfan, A. B.: Un cas de deformation congenital des quatre membres plus prononcee aux extremités, caracterisee par l'allongement des

es avec un certain degre d'amincissement, Bull. et mém. Soc. méd. d. hôp. Paris 13:200, 1896. (Cited by Pappas.<sup>5</sup>)

2. Achard, M. C.: Arachnodactylie, Bull. et mém. Soc. méd. d. hôp. Paris 19:334, 1902. (Cited by Pappas.<sup>5</sup>)

3. Marvel, M. J. and Genovese, P. D.: Cardiovascular Disease in Marfan's Syndrome, Am. Heart J. 42:814, 1951.

4. Griffin, J. F. and Koman, G. M.: Severe Aortic Insufficiency in Marfan's Syndrome, Ann. Int. Med. 48:174, 1958.

5. Pappas, G. E., Mason, D. and Denton, C.: Marfan's Syndrome: A Report of Three Patients with Aneurysm of the Aorta, Am. J. Med. 426, 1957.

6. Wilson, R.: Marfan's Syndrome: Description of a family, Am. J. Med. 23:434, 1957.

7. Marks, J., and Gerson, K. L.: Importance of Autopsies: An Illustrative Case, J.A.M.A. 168:1450, 1958.

### Prophylaxis of Rheumatic Fever and Rheumatic Heart Disease: Joseph M. Miller, New England J. Med., 260; Number 5.

The repetitive nature of acute Rheumatic Fever was emphasized, with 50 to 70% recurrence rate noted. The occurrence of antecedent group A hemolytic streptococcal infection is necessary for the development of rheumatic fever, but since only 2 to 5% of such infections lead to acute rheumatic fever there must be an important host-resistance factor. As it is not possible to foretell which infected host will subsequently develop rheumatic fever, adequate therapy of all streptococcal infections is essential. It is known that though a half of streptococcal infections are of a subclinical intensity, still they are all capable of involving the necessary antigen-antibody response to cause active rheumatic fever. There is a correlation between a rise of the anti-streptolysin O titre following a streptococcal infection and occurrence or recurrence of rheumatic fever.

It has been found that antibiotic treatment (penicillin) started 5 days after clinical onset of the infection, if continued for a sufficient interval with adequate dosages, will preclude such a rise in antistreptolysin, O titre, thereby decreasing the incidence of acute rheumatic fever in these patients.

Fortunately no penicillin-resistant strains of Group A hemolytic streptococci have been found to date. The duration and the dosages of peni-

cillin suggested are an attempt to completely obliterate the streptococci and thereby reduce the development of rheumatic fever.

The therapy recommended for acute streptococcal infection is as follows:

- A. Bicillin (long acting) 900,000 units as a single injection, or
- B. Procaine penicillin 300,000 to 600,000 units every 3 days for 3 doses, or
- C. Buffered penicillin tablets 400,000 units t.i.d. orally for 10 days, or
- D. Penicillin-V 200,000 units q.i.d. orally for 10 days.

In cases of penicillin sensitivity broad spectrum antibiotics in full dosages are recommended for 10 days. Sulfonamides are no longer used to any extent for therapy.

For the prophylaxis of streptococcal infections the following choices are offered:

- A. Bicillin (long acting), intramuscularly, 1.2 million units every 4 weeks, or
- B. Oral penicillin tablets, 200,000 units b.i.d., or
- C. Sulfadiazine, 0.5 gms. b.i.d.

This prophylaxis is recommended for many years after the original attack of rheumatic fever in children, thus carrying the child through all school experiences with the higher exposure rate to infections. In adults the duration of prophylaxis can be shortened. (Abstracted for the Middle Tennessee Heart Association by Irwin Eskin, M.D., Nashville, Tenn.)



## CASE REPORT

### CARPAL GANGLION AS A CAUSE OF PARALYSIS OF THE MOTOR BRANCH OF THE ULNAR NERVE IN THE HAND: A Review and Case Report

Jack H. Booth, M.D., Jackson, Tenn.

Destruction of a nerve by a ganglion is not a rare entity. It may occur in any region where growth of the ganglion causes pressure to be exerted on the nerve bundles. The more common sites of occurrence are the ulnar nerve at the elbow, the median or ulnar nerve at the wrist, the ulnar nerve in the carpal region, the peroneal nerve at the head of the fibula and the posterior tibial nerve at the medial malleolus.

In 1952, Brooks<sup>1</sup> reviewed 13 collected cases of nerve damage caused by ganglia. He reported 4 cases of involvement at the elbow, 4 at the wrist, 3 at the knee, and 2 near the ankle and foot. In the same year Seddon<sup>2</sup> reviewed the reported cases in which paralysis of the deep branch of the ulnar nerve in the hand was caused either by traumatic ulnar neuritis or carpal ganglia. He reported 4 cases in which the cause of the paralysis was a carpal ganglion. Complete recovery ensued after removal of the ganglion in each case after an interval of 7 to 16 months. In all 4 of these cases there was a definite history of trauma preceding the onset of symptoms.

#### Etiology and Pathology

The exact etiology of a simple ganglion is not known, but it usually is stated that it is due to a degenerative process in the structure of the joint capsule or tendon sheath. The possibility of an herniation of synovial tissue from a joint has also been postulated. It has also been suggested that ganglia may represent extra-articular synovial remnants remaining from the formative stage of the embryo. Brooks pointed out that the concomitant existence of osteoarthritis in the adjacent joint was quite common, therefore suggesting trauma as a factor in production of the ganglia. Ellis,<sup>3</sup> in 1936, reported 2 cases of ganglia in the sheath of the peroneal nerve which produced destruction of the nerve, and on microscopic examination gave the impression of being a cystic degeneration of the nerve

sheath. The distinction between cystic degeneration of the nerve sheath and a simple ganglion which produces pressure atrophy of the nerve may be anatomic rather than pathologic. In the case reported below there appears to have been a combination of these two factors. Seddon, in emphasizing the role of trauma in the causation of ganglia, felt that sudden or repeated trauma might well produce rupture of some of the fibers of the joint capsule which would allow herniation of a small synovial sac. Brooks pointed out that it is unusual to have synovial lining in a ganglion cyst, and suggested that if herniation were a cause of these ganglia the lining cells probably undergo metaplasia to mesothelium.

#### Case Report

J. G. N., a 48 year old white man, was referred to us July 5, 1958, with a history of gradual atrophy of the intrinsic muscles of his right hand over the period of one year. This was accompanied by pain, and a tender area in the region of the hamate. He stated that the pain had become quite severe in recent weeks, keeping him awake at night. The patient had observed that the atrophy first began in the first dorsal interosseus muscle and progressed to the rest of his hand. He was under the impression that at one time the pain and tenderness subsided for a short period. He thought that there was some return of muscle function in his hand shortly after this but then the pain recurred and the atrophy became progressive.

*Physical examination* was within normal limits with the exception of the findings in the right hand. There was atrophy of the first dorsal interosseus muscle and the adductor pollicis muscle; there also was atrophy of the remaining dorsal interossei. No other definite muscle atrophy was detected. Electrical stimulation confirmed the finding that the lesion was at, or just distal to the hook of the hamate involving the motor branch of the ulnar nerve. The abductor digiti quinti, the opponens digiti quinti, and the palmaris brevis muscles were all intact and responded well to nerve stimulation. There was very mild "clawing" of the ring and little finger in this hand. There was an area of rather exquisite tenderness localized to the region of the hook of the hamate, and a small mass was questionably palpable.

The patient was operated upon on July 10, 1958, with a preoperative diagnosis of pressure atrophy of the motor branch of the ulnar nerve. Exploration revealed a ganglion cyst which apparently arose from the triquetral-hamate joint and which completely surrounded and infiltrated the motor branch of the ulnar nerve. The nerve supply to the hypothenar eminence appeared to accompany

the sensory branch of the ulnar nerve. The nerve branched proximal to its usual point of bifurcation. Injection of saline solution into the nerve sheath, both proximal and distal to the mass, failed to show any evidence of the solution traversing through the cystic mass. A careful attempt at dissecting the nerve from the mass was unsuccessful. It soon became evident that the nerve had been completely destroyed and no components grossly recognizable as nerve tissue could be seen in the central portion of the mass. It was therefore elected to resect the ganglion and this was accomplished. After resection of the ganglion, it was found that normal nerve tissue was not recognizable in either the proximal or the distal stump until they were cut back further. The hook of the hamate was resected. Anastomosis of the nerve ends was accomplished after destruction of the nerve supply to the fourth and fifth volar interosseus muscles; the latter being necessary in order to obtain length.

The patient's postoperative course was uneventful and he was relieved of his pain immediately. Examination 5 months postoperatively revealed that he had good function in his hand with the exception of the dorsal interosseus and adductor pollicis atrophy. He was free of pain and tenderness. There was a trace of function which could be detected in the adductor pollicis muscle.

Pathologic report on the specimen removed at the time of operation was a simple ganglion cyst. Small elements of nerve tissue could be recognized on one edge of the cyst but no nerve tissue which approximated the size of the ulnar nerve could be found to traverse the mass.

### Conclusions

A simple ganglion may cause destruction of the nerve either by arising from without the nerve sheath and expanding in a closed space compressing the nerve against bone or other structures, or by arising within the nerve sheath and expanding within its confines to produce necrosis of the nerve. The case reported above shows definite association with a joint and also shows infiltration of the nerve sheath by ganglion-like tissue. The clinical picture of paralysis of the deep branch of the ulnar nerve is clear-cut and its etiology should be sought. Exploration of the nerve is justified to rule out a ganglion if other causes are not evident.

### References

1. Brooks, Donald M.: Nerve Compression by Simple Ganglia, A Review of Thirteen Collected Cases, *J. Bone & Joint Surg.* 34-B:391, 1952.
2. Seddon, H. H.: Carpal Ganglia as a Cause of Paralysis of the Deep Branch of the Ulnar Nerve, *J. Bone & Joint Surg.* 34-B:386, 1952.
3. Ellis, V. H.: Two Cases of Ganglia in the

Sheath of the Peroneal Nerve, *Brit. J. Surg.* 24:141, 1936.

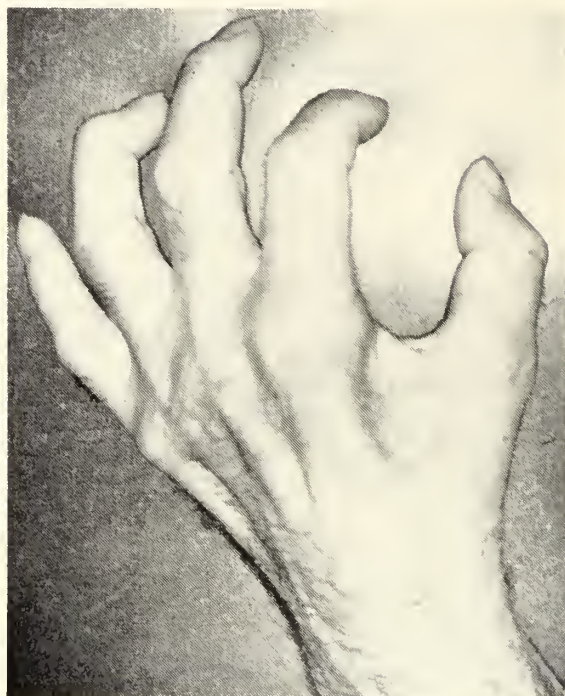


FIG. 1. The intrinsic muscle atrophy is evident. The "clawing" of the ring and little fingers is quite mild.



FIG. 2. Photograph at the time of operation shows the motor and sensory branches of the ulnar nerve in the carpal region. The ganglion is seen destroying the motor branch. The hemostat passes beneath the portion of the motor branch distal to the ganglion and its tip rests against the hook of the hamate.



## STAFF CONFERENCE

### University of Tennessee\*

#### Personality Disorder and Diabetes Mellitus

DR. G. H. AIVAZIAN: The patient for presentation this morning is a young man of 22 years, who presents a complex picture, commonly encountered in general practice, that is, the co-presence of physical illness and emotional disturbances. The patient is a diabetic with serious "personality changes," and has been a major problem not only in medical management but also for the community. He was referred for psychiatric evaluation and treatment.

DR. HARVEY C. REESE: Mrs. Chambers, would you give us a summary of the social history?

MRS. JEAN C. CHAMBERS: Mr. M. was referred by his treating physician as a diabetic in whom gradual but definite personality changes had been noted particularly in recent months. He has been hospitalized some 12-15 times in the past three years. Each time his condition would be stabilized but almost immediately upon release he would go off his diet and get completely out of control. He would lie, was belligerent, demanding and uncooperative. He had been known to almost every doctor in the area and all felt he did not try to help himself. He would often cry and appear "depressed." The doctors felt that there was a serious psychiatric aspect to his illness and considered the evaluation and treatment of the psychiatric disorder of primary importance in the total management of the case. The Division of Vocational Rehabilitation, in particular, expressed willingness to work with Mr. M. should we recommend that he could use their services. Our only source of information was the American Red Cross which has assisted Mr. M. in the recent past, beginning in March, 1956. Patient is the second of six children born to a painter, age 50 and a mother now 40 years old. An older brother has left home and other children in the home are two brothers, seven and four, and two little

sisters, two and ten months of age. Although the father has generally made enough money to support the family he has been a chronic alcoholic and has spent a large part of his earnings on whiskey. The parents have little formal education. According to the mother, birth and early development were normal and uneventful. Besides diseases of childhood, at age 11 the patient had a broken arm. He attended school fairly regularly through the eighth grade then stopped because he wanted to. He has never married and has worked sporadically, chiefly helping his grandfather mowing yards, but briefly also as a taxi dispatcher and in a clothing factory as a sort of errand boy. During the past six years (since he has known he had diabetes) he has, at times, lived away from home with maternal grandparents, at other times boarded. He has had little or no help from his family in caring for himself and has been very inconsistent in cooperating with medical recommendations. When he came to Red Cross for help last year after checking with his doctor they worked out a diet with the Health Department, purchased medicine, gave a weekly grocery order and also gave him clothing. For a period of 8 months this was continued but patient did not cooperate and frequently had to be hospitalized. Just before admission he had reached the stage of begging on the streets and was considered a public nuisance.

DR. REESE: Dr. Seiler will now give us the mental status.

DR. EDWARD SEILER: At the time of admission the patient was extremely weak, emaciated and pale. His facial expression reflected dejection and self pity. He seemed to be concerned with his condition which he considers hopeless because "there is no cure." He was also concerned with a multitude of physical complaints, viz., complete impotence, poor vision (has cataract in both eyes), weakness in muscles and joints, diarrhea, 6 to 10 times a day, occasionally with blood in the stools. No disorder in spontaneous conversation was manifest and no disturbances of thinking were noticed at any time. A consistent attempt was made to exaggerate his physical handicap and to use it in an effort to obtain sympathy and attention from the examiner and others.

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He showed little change in emotional reaction in response to thought content. Patient's thoughts center about his illness; its seriousness, limitations imposed on his physical activities, failure to control it outside a hospital, dangers and complications. He brushes aside all responsibility and ascribes everything to his illness. "They won't give me a job because I am sick. I can't do (whatever is being considered) because of my condition." He feels that he has not been able to cooperate with his doctors because "I have no will power" or "maybe I am trying to kill myself." His only aim seems to be immediate satisfaction. Knowing too well the consequences, he has consistently gone contrary to medical instructions and in the past three years he has been admitted about 15 times to hospitals on an emergency basis. The patient has low average intelligence, is well oriented and has no memory disturbance. On the ward he has been demanding, uncooperative, expects things to be done for him, feels mistreated and sorry for himself, over-exaggerates symptoms and has the attitude of "what have I got to get better for." Pertinent physical and laboratory findings are: emaciation, early cataract in both eyes, blood sugar level on admission, 315 mgs. per 100 ml. of blood,  $\text{CO}_2$  combining power meq/L 10. Diagnostic impression: Passive dependent personality. Diabetes Mellitus.

DR. REESE: Mrs. Middleton, would you tell us what the patient is like on the ward?

MRS. PEARL MIDDLETON: Well, from the very beginning, this boy has felt very sorry for himself. Anytime we would try to talk to him about his diet or about the management of his diabetes, he would cry. He would even express, "Poor me, I have nothing, I'm on the mercy of the world, I don't have any money, I have nothing," but he doesn't hesitate a moment to ask people for things he wants; he has come to expect it, as our duty, rather than that we're doing him a favor. If we do not give him as much as he wants he begs from other patients. He steals food from any place he can get it; if these are taken away from him he would burst out crying and feel that he was really mistreated. He complains constantly of muscle pains, joint pains; says he does not sleep at night. He definitely exagger-

ates his symptoms. He often says, "What have I got to get well for?" I think he is attempting to play on sympathy of people so that he can get everything he can. He has been fairly cooperative in getting along with people. We've had no problem in regard to his relationship with other patients.

DR. REESE: Was he able to express any kind of feeling about family relationships?

MRS. MIDDLETON: He said his father didn't attempt to help the mother in regard to his case of diabetes. Always the father agreed with him and would give him whatever he asked for if it was available.

DR. SEILER: He indicated to me that his family was living on charity but he didn't seem disturbed about it.

DR. REESE: Does he come to O.T.?

MISS MARGARET SMITH: Yes, he keeps himself busy all the time and does fairly nice work. He is very proud of what he makes and shows it to everyone. The only trouble I've had with him is that he opens my cabinets and gets things out he wants, even when asked not to. In his social contacts he lacks initiative but is pleasant and social if you start the conversation with him.

DR. REESE: Mr. Battle, would you give us the psychological report?

MR. ALON BATTLE: In the psychologicals there is no evidence that this patient suffers a disorder of psychogenic origin. The record is that of organic pathology with relatively serious ramifications in the personality adjustment. No self-destructive tendencies were apparent. Intelligence: dull normal with I.Q. of 83.

#### Excerpts from the Interview

DR. REESE: We would like to ask you a few questions; particularly, how do you happen to be here in Gailor Hospital and what do you hope to accomplish?

MR. M.: Well, I was sent here by a state man there at Dyersburg for treatment of diabetes, as far as I know. That's the only reason I can think of.

DR. REESE: Any other reason for your coming?

MR. M.: No sir.

DR. REESE: Have you ever had the feeling that you needed any treatment for your nerves?

MR. M.: Last week I have.

DR. REESE: Could you describe the feeling of being nervous?

MR. M.: No sir. I'm just shaky all the time.

DR. REESE: What sort of things do you worry about?

MR. M.: Well, you see . . . most, most trouble I've ever had was daddy. He was a heavy drinker up until about eight months ago. He'd go out and work and draw his money and go get drunk . . . and that was worrying mother and me too.

DR. REESE: How did you feel about your brother whipping your father?

MR. M.: I'm glad of it.

DR. REESE: Could you tell me how your father treated you?

MR. M.: He treated me just fine. Well, practically anything that I wanted I could get if daddy had . . . I just felt . . . well, he always told me he cared more about me than he did any of the other kids, up to the last three kids.

DR. REESE: And, how old were you when you discovered you had diabetes?

MR. M.: . . . About fifteen. After I quit school.

DR. REESE: And, do you remember how you felt when the doctor told you that you had diabetes?

MR. M.: No sir, I don't. Pretty low, I imagine.

DR. REESE: What do you suppose has been your biggest fear?

MR. M.: Controlling my diabetes, I think.

DR. REESE: What mostly are you afraid of about the diabetes?

MR. M.: Well, going into comas. I've been in insulin shock, but I've never been in a coma.

DR. REESE: Suppose you tell us what kind of advice you have gotten and who has given it to you.

MR. M.: Well, the doctors say I have to take this insulin and stick to my diet if I expect to live. Just things like that.

DR. REESE: You wouldn't stick to your diet too well in other hospitals.

MR. M.: Like I said before, something just came over me and I couldn't resist eating sugar or something. I don't know what it is. You may or may not. Sometimes I just haven't got control over what I eat.

DR. REESE: Have you ever been afraid that you couldn't support yourself?

MR. M.: Just being in and out of the hospital so much, I thought I just couldn't hold a job so good.

DR. REESE: How do you feel after you have gotten off your diet?

MR. M.: I feel weak, nervous; sweat a lot. I usually get mad at myself.

DR. REESE: What do you do when you get mad?

MR. M.: Sit down and try to think most of the time.

DR. REESE: Do you ever get in any fights?

MR. M.: No sir.

DR. REESE: Even when you were a little kid.

MR. M.: Well, yes sir, when I was little. I haven't fought since I was 12 or 13.

DR. REESE: What sort of things seem to make you mad?

MR. M.: Don't particularly know.

DR. AIVAZIAN: Has there ever been anyone particularly interested in you as a person?

MR. M.: I can't think of anyone, only my dad and family.

DR. AIVAZIAN: When you do not follow the prescribed diet, what does your father say, or your mother do about it?

MR. M.: Nothing.

DR. REESE: Have you ever had trouble with noises in your ears?

MR. M.: Well, sometimes my ears feel like its got a bell in it and it finally, gradually disappears, and most of the time while that's going on, my vision gets blurred. After that's all over I get shaky, just for a few minutes though.

DR. REESE: In addition to hearing these bells, does it seem as if you could hear someone speaking to you?

MR. M.: No sir.

DR. AIVAZIAN: How do you see the future, your future?

MR. M.: Well, when I get well, I see it pretty bright, and that's what I'm here for, to get well.

#### Discussion

DR. REESE: Dr. Ashkar, will you give us your views?

DR. FU'AD ASHKAR: Some English au-

thors report a relation between the predisposition to diabetes and the presence of affective disorders and in diabetes some of the toxic intermediary products of metabolism could account for some of his symptoms, particularly the bells and blurring vision. Two things struck me: First, he said he might be hurting himself. His eating could be a self-destructive attempt. Another thing, the separation from the father for such a long part of his life. The fact that when Dr. Aivazian asked him who has shown concern, he said: "Daddy." He has lived all his life with his mother, and he didn't mention her then and usually we expect the mother to be the one who pays so much attention. It seems that in early childhood he did not have the support and fulfillment of his needs by the parents—one being away, and the other, who, I imagine, was busy trying to make ends meet and apparently was not too outwardly demonstrative. So, his over eating could be, in part, the kind of orality which is found among so many people who eat starches, or candy at times of frustration. He feels rather unloved and unwanted and reverts back to the infantile level of feeding his mouth, attempting to satisfy his needs for love. The personality has not had the chances to develop fully and we have indications that he hasn't been able to cope either with the emotional or the physical demands of his life. A diagnosis of "Inadequate Personality" is worth considering. I would not be optimistic about his prognosis, yet, I feel that with long term therapy within a hospital, if his dependency needs may be adequately handled, the diabetes controlled, his physical condition improved, the prognosis would not be too bad. At best, it is guarded because of the kind of personality we are working with and the background he is most likely to go back into.

DR. REESE: Any particular hospital you have in mind?

DR. ASHKAR: A general hospital would not be controlled. Since he appears non-psychotic, I do not feel that Western State would be appropriate. I can only think of Gailor or an equivalent to take care of him because his needs are definitely double-barrelled. We have to think of him as a

person, plus the fact that his diabetes needs control.

DR. ESATOLAH RASSEKH: I think this is primarily a medical problem—a very severe diabetic with very poor prognosis. Even with all the emphasis of the social aspects and poor family, I think the real stress is his medical condition and I think he must remain in a medical ward, not a psychiatric ward.

DR. REESE: Do you have a duration of hospitalization in mind that would be required? After all, he has been on the medical service of several hospitals 12 to 15 times.

DR. RASSEKH: I don't think short term therapy will be of help. This patient requires permanent care. I know it is very difficult for a hospital to offer that but I can see no alternative.

DR. REESE: Would you comment on the fact that he seems to be relatively easily controlled once he is put in a hospital and this control is lost once he is discharged.

DR. RASSEKH: I don't think he is really relatively easily controlled. This patient has always been a problem for the nurses. This, I believe is a case of childhood diabetes, and I don't think the onset of the diabetes was seven years ago, but rather, perhaps, at the time when the patient was suffering from his articular pain.

DR. SEILER: The dependency needs have not been taken care of by the parents. It seems he has more or less counted on his father all along to give him everything he wanted, and the mother was more or less willing to go along with it, though she didn't like it. His diabetes has made him even more dependent and it has spread his dependency to other people. I think he has gotten to the point where he feels that "I don't have to worry because there will always be somebody to take care of me—who will not let me die." We have a personality disturbance which has been made worse by diabetes and both medical and psychiatric treatment are necessary. He is not adequately controlled because he cannot cooperate. He will eat anything he can get his hands on and he has no awareness of what is going on when he does this. He has come to the conclusion that he can de-



pend on other people to do what is necessary for him.

DR. EUSPACE LIBERAKIS: I like to point out some of his statements: "Whatever I wanted, my father would give me" and I think he means material things, while affectional needs apparently were not met the same way. Then he said: "I feel better when I eat sugar," so this eating has something more than a physiological meaning for him. Thus, he says "I have no control." The diabetes, superimposed upon his deficient personality with passive aggressive tendencies, has enhanced utilization of defenses like regression and a passive attitude of helplessness: "Here I am and you have to help me." In many ways the dynamics is similar to that of an alcoholic patient, sugar substituting alcohol. He has pyorrhea, muscle pains, enlarged lymph glands, has had no erections and no ejaculations for three years. These may be due to the deficiency of the endocrine glands. Bells ringing in his ears and seeing stars, are either due to a diabetic neuritis.

DR. P. J. SPARER: I would emphasize this syndrome from three viewpoints: (1) etiology; (2) course; (3) treatment. In regard to etiology: At one time it was enough to say that diabetes was a hereditary disease with constitutional predispositions and we usually accepted the fact that insulin was deficient because of pancreatic involvement. More recently it has been shown by a number of investigators (particularly Selye) that more is involved. The hypothalamus, pituitary, adrenal, even the gonads may be involved as well as the pancreas. Not all cases of diabetes mellitus can be explained on insulin deficiency alone. An excess of ACTH, an excess of somatotrophic hormone, and cortisone can also produce diabetes. The psychological literature is rather deficient in worthwhile studies of the emotional factors involved in the etiology. Most of the studies point out that there is no definite, specific, uniform personality type involved in the symptoms, yet, we get into a dilemma because they say the personality is important—which it is. The course of the illness is, that whatever the basic personality may be, after the onset of the illness, personality changes do gradually appear. Whether these changes

are primarily, or partly due to metabolic changes with their effect on the central nervous system, or whether it is the psychological effect on the patient, in that the patient sees himself differently (he is different from other people, he has to get injections, he has to take care of his diet, etc.) or both, would be difficult to say. The hostility various patients show in many ways, principally the dietary indiscretions and the depression this individual shows. In the course of the illness, most patients do show it, but that doesn't mean to say that they don't also have anxiety to some extent, but anxiety can be carried to a point where they show a depression even with suicidal thoughts. The impotence here is difficult to explain, and there is really no adequate explanation for this in the literature. In relation to treatment: The internists now feel certain that we have to include a psychological approach to these patients, so we have to emphasize not only the treatment of the disease but the treatment of the person, whatever those aspects may involve. In this case they involve specific things and we must include in a total treatment of this patient psychotherapy, whether in a hospital or outside in terms of having this patient accept his illness. There are many things which have been brought out today which show this patient really does not, despite the fact that on a verbal level he acknowledges some acceptance—but we know underneath that verbal acknowledgement his acts indicate that he doesn't. So, we will have to pitch psychotherapy to gain emotional acceptance so that he can live with it, becoming cooperative rather than refractory.

DR. WILLIAM WALKER, JR.: I have been thinking about the repressed hostility he has and I get the impression that going off his diet is an aggressive mechanism he uses to have his dependency needs met, and also the hostility which is introverted accounts for the depression he has. He certainly feels he is less of a man for his illness and that may be another factor in going off his diet.

DR. AIVAZIAN: The problems this patient presents are commonly encountered by general practitioners in chronic illness of one type or another. The patient is 22

years of age and has been a known diabetic since age 15. The first two years were relatively uneventful, but the last four years have become a major problem for the physicians, through passive obstructionism by the patient equivalent to sabotage—moreover, the family environment has not been helpful in the least. The primary problem is a constellation of personality defects which have been working gradually and have come to the surface with greater force within the last few years. Many of you have already referred to how the personality defects have appeared, particularly during the developmental period, because of the paternal and maternal influence within the family and also because this patient's essential needs were not adequately met during the formative years, in particular, the affective needs. As a result, extreme dependence upon others has developed and persists at the present time. Because of numerous illnesses during childhood, accidents, etc., he has come into close contact with physicians and received some satisfaction for his dependency needs. At the present time he doggedly sticks to them. They are his refuge—physicians and hospitals. That is where he runs as often as he can, whenever he is faced with minor stress. How much sibling rivalry has played a role here is not very clear, but I find it reasonable to assume that when he was a child, after having enjoyed the little that the family could offer up to age six, he was faced with a rival in the new children, and, thereby, the affection and attention he used to receive was divided among many. Together with the personality defects, we should not forget the low intelligence. Probably, in the course of time, some degree of damage to the brain has also been added because of his diabetes, frequent hypoglycemic phases, and also toxic metabolic reaction in addition to cataract of both eyes. The muscular phenomena of easy fatiguability and other somatic complaints may be explained, in part, by the diabetes. These symptoms have been overly exaggerated by him at most times and have served the specific purpose of gaining more attention and enhancing his unconscious intent of promoting primary and secondary gains. Also, his inability to

cooperate with the physicians, as if wanting, as he puts it, to "kill myself," is not an uncommon phenomenon seen in many similar conditions and is referred to as physiological suicide. I do not consider the "depressive element" mentioned by the patient as true depression but rather another attention gaining effort for "poor me." He has been extremely demanding because he has learned by experience, "I get what I want." When he doesn't get what he wants, he doesn't mind to steal, or cover up his acts by telling lies, which again are clear indications of a poorly developed superego.

We have a dual condition: physical illness; and a personality disorder, each having a reciprocal, unfavorable influence upon the other. There is, also, the time element. A solid pattern of behavior has been established which meets to some degree his primary and current needs. Therefore, he would be most reluctant to part with them, in fact, a major limitation for psychotherapy.

With so many limitations therapeutic goals must be very modest and focused on improving functioning through re-educative psychotherapy and a consistent effort to establish a healthier pattern of behavior. Such a program, to be effective, should be implemented within a hospital for a reasonable length of time, several months or longer. Such facilities are not easily available. General hospitals do not have adequate psychiatric facilities, therefore, prolongation of his stay here for as long as the hospital may afford is the only alternative.

DR. REESE: Do you feel we can keep him so long as to actually alter his prognosis, and what type of self-sufficiency will you be expecting of him, should we keep him the optimum period of time?

DR. AIVAZIAN: Well, I would like to emphasize one point which, perhaps, I didn't make very clear. As far as prognosis goes, I am not hopeful in the least, but I am willing to try and offer him the maximum at this point, say three to six months. The gains made may enable him to cooperate with the agencies which have been most willing to extend all the help they can to the patient.

DR. SPARER: Could he also be taken on for outpatient clinic follow-up?

DR. AIVAZIAN: I don't think that will be possible. What has to be done has to be done in his own home, which is too far away, through the rehabilitation agencies and others who have been equally interested in his welfare.

DR. REESE: Mrs. Chambers, can you think of any way in which Social Service might be helpful—perhaps in the knowledge of some institution that might benefit this individual?

MRS. CHAMBERS: Would it be possible that at such a place as the National Institute of Health in Bethesda, there might be any kind of research project going on with conditions of this nature which would make him eligible? Would it be worthwhile writing to find out? They do some things along these lines, I think.

DR. AIVAZIAN: I think that's a very good suggestion. If accepted at Bethesda, the time element, which is a limiting factor here, will not be there.

DR. REESE: The interplay between emotional aspects of the individual and the physical can never be separated, although the proportion of the two points vary tremendously in patients as they arrive in the physician's office. Consequently, they both should be weighed always in the case of the uncooperative patient, rather than simply writing him off as a "crock." Since they are not always as severe as this case, a great deal can often be done by the practitioner himself without referral to a psy-

chiatrist. The environment, for example, may be much more stable than in this case, so that a little manipulation there or a discussion of the nature of the problem with the individual's relatives, or employer, etc., could remove the uncooperativeness in a fairly simple manner. That is not true in this case. I think the prognosis is poor no matter where he is sent or who works with him, because he has so many factors on the negative side to be dealt with: (1) The presence of a severe diabetic condition which has affected more than one system already, including the CNS, his eyesight is decreasing and is already not too good; (2) His intelligence is low; (3) His overall status does not give him much future; (4) The extremely dependent basic personality; and (5) The reality fears which any individual would feel under these circumstances. It isn't strange that he is in the shape he is in. What should be done with him in a practical sense rather than the ideal is simply to allow him to be dependent because he would find it difficult to care for himself even if his attitude were good. He cannot now be held responsible for what made him the way he is, therefore, mercy, charity, and infinite patience are the qualities that would be most helpful to this boy. He has gotten them in abundance, but some sort of permanent welfare status, perhaps in a home for incurables, would probably be the most practical approach.



## CLINICOPATHOLOGIC CONFERENCE

### Vanderbilt University Hospital Thrombotic Thrombocytopenic Purpura\*

A 33 year old white housewife was admitted to Vanderbilt University Hospital for the first time on December 6, 1949 with the *Chief Complaint* of bleeding from the mouth and vagina for 4 days.

Apparently she had been in good health in the past beyond 2 episodes of menorrhagia and weakness, in 1942 and 1945, which were of such severity as to require hospitalization. However, transfusions were not deemed necessary and she was treated with iron orally. No other sites of bleeding were known to be present at that time. On her second admission (1945) large lymph nodes were found in her neck, axillas, and groins, but a biopsy was not done until 1947, at which time a diagnosis of lymphosarcoma was made. Her course was followed by her physician, and she remained asymptomatic for the next 2 years until the summer of 1949, 4 months before admission, when she developed a "butterfly" shaped eruption over her nose and cheeks which demonstrated marked sensitivity to sunlight.

About a month before admission she developed transient migratory polyarthritides with pain, swelling, and redness involving mainly the knees, ankles, and interphalangeal joints. Approximately 12 days before admission she developed profuse vaginal bleeding (her last menstrual period had been only 14 days before and was normal). Petechiae began to appear shortly afterwards, and bleeding soon became evident from her gums and nose. She was admitted for transfusion and evaluation. No recent weight loss had occurred. A review of systems otherwise was negative.

*Past history* revealed the childhood diseases; general health had been good. In 1947 she had had a uterine dilatation and curettage without incident. (No further details were known.) There was no known history of allergy, renal disease, or any *family history* of bleeding disorders. She had never been pregnant and denied recent exposure to drugs and toxins.

*Examination.* T. 99.8, P. 88, R. 18, B.P. 110/70. She was a well developed and nourished alert woman in moderate distress. No icterus was noted. Petechiae were generalized in distribution over the skin and mucous membranes. There were multiple firm, nontender, discrete nodes in all the lymphatic chains, 1 to 2 cm. in size. A "butterfly" shaped rash covered the cheeks and nose. The conjunctivae and buccal mucosa were pale with ecchymotic areas; bleeding from the gums was present. The fundi were normal. Thyroid was not enlarged.

The lungs were clear to percussion and auscul-

tation. The heart was not enlarged; the rough pulmonic, systolic murmur disappeared with position. Occasional extrasystoles were present. The abdomen was soft; liver and spleen were not palpably enlarged. Pelvic examination was done but data were not recorded. There was no clubbing or edema. The joints were normal. Neurological examination was in order.

*Laboratory Data.* Dec. 7. The urine was insufficient for specific gravity; pH was 5.0, albumin 4+, sugar negative; microscopically 15-20 R.B.C., occasional R.B.C. casts and occasional W.B.C. were seen. Dec. 6. Blood: Hgb. 6.5 Gm.; P.C.V. 19; R.B.C. 2.28 million; W.B.C. 4200; Type O, Rh+; differential count—segs. 73%, eosinos. 1%, lymphs. 21%, monos. 5%, some large immature lymphs., and no platelets. Dec. 7. P.C.V. 24 (a.m.), 34% (p.m.); sed. rate (corrected) 23; clotting time 8 min.; bleeding time 3 min. 45 sec.; platelet count—zero; N.P.N. 57 mg.; CO<sub>2</sub> 29.6 and chlorides 106.2 mEq/L. Throat culture showed hemolytic streptococcus. Dec. 8. P.C.V. 29%.

*Course.* She was started on transfusions of whole blood and received 1000 cc. on December 6, with little change in her bleeding. On the second hospital day she was noted to have labored respirations following a tonic-clonic convulsion with transient unconsciousness. Postictally she seemed to understand spoken words, but never answered questions during the remainder of her hospitalization. She was given 2500 cc. of blood on December 7 and another 1500 cc. on December 8 without adverse reaction, along with penicillin, oxygen, phenobarbital, stilbesterol, and testosterone. She continued to bleed, although less briskly, and her temperature ranged from 99 to 101.6 with a pulse rate of 80 to 100.

On the fourth hospital day (December 9) she suddenly became apneic following a generalized convulsion at 1:45 a.m., and expired shortly afterwards. Her B.P. was 150/90 just prior to her death. Autopsy was obtained.

DR. R. H. KAMPMEIER: The case under consideration today, thus, is that of a young woman who had had two episodes of menorrhagia, one at the age of 26, the second at the age of 29, of such degree that she had the complaint of weakness. There was no bleeding from other sites, and transfusions did not seem indicated. Her treatment was with iron. It is difficult to say just what the significance of these two episodes of menorrhagia is, the last of which occurred four years before the present admission. We must admit the possibility that this represented some gynecologic condition unrelated to the present illness, say of ovarian failure due to some unknown condition which may have corrected itself. However, at the time of her last admission, four years after the last episode of menorrhagia,

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there was a recurrence of the same accompanied by bleeding from the gingival mucosa.

Another aspect of this case is related to the lymphadenopathy which was present at the time of the second bout of menorrhagia in 1945, representing enlargement of nodes in the cervical, axillary and inguinal regions. This was followed by an asymptomatic period of two years duration and then by a biopsy, though it was not indicated why this was done at that particular time, in 1947, or two years after the lymphadenopathy was described. The biopsy was reported as showing lymphosarcoma. In the succeeding two years between that diagnosis and the present admission, no symptoms or signs were related to the lymphadenopathy.

Coming to the symptoms which appeared shortly before admission to the hospital, the following are pertinent matters: Four months before admission she developed "a butterfly rash" which was said to be markedly sensitive to light. This might suggest discoid lupus. A month before admission the patient developed polyarthritides of a transient or migratory nature, accompanied by pain, swelling and redness of certain of the joints, both large and small. Lastly, twelve days before admission there developed metrorrhagia, and shortly were noted petechiae in the skin and, finally, epistaxis and gingival bleeding.

The high points in the physical examination to be kept in mind are the facial rash, the evidences of bleeding, namely, the cutaneous petechiae, bleeding from the gingiva and in the conjunctiva with ancillary findings of interest. The blood studies revealed an anemia whose indices (MCHC, 34%, MCH, 28 micrograms and MCV, 80 microns) would indicate that the anemia was due to the loss of blood. The white blood counts were low though not remarkable, and the differential picture was not helpful diagnostically. It is interesting to note, however, that clotting and bleeding times were normal, and of significance was the absence of platelets. The urine showed a heavy albuminuria with red cells and red cell casts as evidence of bleeding from the kidneys.

Lastly, convulsions occurred and the patient died in a seizure.

Thus, we will have to attempt to correlate three separate and distinct items as follow: (1) a hemorrhagic diathesis, characterized by three episodes of menorrhagia or metrorrhagia in a period of seven years, the last of these shortly before admission, being characterized by other evidences of thrombocytopenic purpura, namely, petechiae, bleeding in the conjunctivae and from the gums, epistaxis, and bleeding from the urinary tract; (2) a lymphadenopathy of four years duration with a pathologic diagnosis of lymphosarcoma; and (3) shortly before admission there developed migratory polyarthritides and a specific cutaneous rash.

To carry on my discussion I am going to make a presumptive diagnosis of disseminated lupus, and I am adopting this attitude on the basis of a clinical picture whose component items are entirely compatible with this diagnosis. Thus we have a 33 year old woman who has developed a "butterfly rash," accompanied by migratory arthralgias and the arthritic manifestations of pain and swelling and redness of joints, both large and small. Furthermore, there has been albuminuria accompanied by red cells and red cell casts. Finally, the involvement of cerebral blood vessels and resultant convulsive seizures are compatible with such a diagnosis.

In the several papers published by Sir William Osler, between 1895 and 1898, on the subject of "Exudative Erythema," which certainly encompassed the several collagen diseases, from his clinical description, he speaks of purpura, and bleeding from "the mucosal surfaces." Thrombocytopenic purpura as a manifestation of lupus erythematosus has been described by many authors. So too, as in this case, purpura or the manifestations of bleeding have been reported to have occurred several years before the characteristic eruption and other clinical manifestations had appeared. Comments of this type have been made by Dameshek, by Harvey and Conley, by Talbot and others. Michail says plainly that 50 percent of patients with disseminated lupus have at some time or other thrombocytopenia. Cases have been described in the literature in which splenectomy was done



because of purpura, and sometime after operation the full-blown picture of lupus erythematosus had developed. Among the 138 cases of lupus erythematosus disseminatus studied by Harvey and collaborators, there were 86 patients in whom studies of the blood platelets had been made. At some time, in 23 of these 86, the platelet counts were abnormal. In 12 of these 86 there had been severe thrombocytopenia, with counts below 50,000, and it was this small group which made up the outstanding cases of thrombocytopenic purpura. The clotting time was normal in all of these. Coagulation defects have been described as part of the picture of disseminated lupus.

In this discussion of disseminated lupus and in light of the clinical manifestations of purpura and a platelet count of zero, I must bring up for brief discussion thrombotic thrombocytopenic purpura. It is necessary to call attention to this since I have already implied that in this patient, under discussion today, we are dealing with diffuse vascular disease. The condition of thrombotic thrombocytopenic purpura is actually also a vascular lesion as the result of thrombosis on the basis of aggregations of blood platelets. The characteristics of thrombotic thrombocytopenic purpura, are thrombocytopenia, a hemolytic anemia, symptoms related to the central nervous system, namely, headaches, paresthesias, paralyses, convulsions, delirium and coma. The laboratory findings of interest for the diagnosis of this condition are a high reticulocyte count, increased fecal and urinary urobilinogen, and an elevation of the serum bilirubin. A number of these findings have been demonstrated in this patient. The patient's death occurred six months after study was begun.

When I consider the clinical situation of the patient, as described in the protocol, and the background of diffuse vascular disease I can only come to the conclusion, as noted before, of diffuse vascular disease of the lupus variety. I do not believe that we are dealing in this patient with thrombotic thrombocytopenic purpura though, clinically speaking, this might fit into the picture. There are several laboratory items we do not have at hand, namely, the reticulocyte count and the studies on the uro-

bilinogen, nor do we have evidence of a hemolytic process which commonly accompanies the disease, as shown by an elevated serum bilirubin. Reticulocytosis and increased fecal and urinary urobilinogen are helpful in diagnosis. From what little I have read and know about thrombotic thrombocytopenic purpura, it appears that death is to be anticipated shortly after the onset of symptoms, namely, within a matter of some six months or so. If this woman's original bout of menorrhagia was related to the present diagnosis it would presuppose a duration of illness of seven years.

We cannot entirely discount the lymphadenopathy, but just how to bring it into the picture is rather difficult. In the first place, if the lymphadenopathy is of significance, it is interesting to notice that it was present as long as four years before the patient came into the hospital on her final admission and, in addition, that there was no change in the lymphadenopathy insofar as it is known. This is a remarkable course of events for anyone of the several entities of the lymphoma group. The biopsy diagnosis was that of lymphosarcoma.

Now it is known that lymphadenopathy may occur in disseminated lupus, and when it does the characteristic microscopic appearance is that of necrosis in the nodes, though from the literature one learns that lymph node biopsies from patients having disseminated lupus have been interpreted as that of early Hodgkin's disease or early lymphosarcoma. Of course, all of us are aware of the occasional notorious errors which occur in the pathologic examination of nodes which have been removed for biopsy. The erroneous diagnosis of sarcoma is not too unusual, particularly if the nodes involved are those of the inguinal area.

The important question, then, is whether this patient actually had lymphosarcoma or not. We do know that occasional errors may occur in the study of nodes removed for biopsy and a false diagnosis of lymphosarcoma has been made at times. We note the comment upon the differential count of some large immature lymphocytes. One might like to say that in a lymphoma the clinical course should be progressive, particularly when dealing with a seven year



course, if this actually should be included in the consideration. It is known that certain lymphomas, particularly chronic Hodgkin's disease, and even in the case of lymphosarcoma, may represent a very slowly progressing disease. Nevertheless, I would think it remarkable that a patient should have enlarged nodes for a period of four to seven years and have no clinical symptoms of systemic disease, nor focal symptoms referred to nodes, their enlargement and possible lethal effects. One might wish to include thrombocytopenia as being part of the picture, particularly if one postulated the invasion of the bone marrow by a lymphomatous process, leading to a rapidly progressing aplastic anemia and a downward course. Thrombocytopenia is a difficult condition to evaluate at best, and one might say that disseminated lupus can well have such effect if it has caused serious invasion of the bone marrow with thrombocytopenic purpura as one of the manifestations of such invasion. We have no other evidence of invasion of the bone marrow in terms of other manifestations of an aplastic anemia. All we have is actually the absence of blood platelets.

In summary, then, my diagnosis is that of *lupus erythematosus disseminatus*, amplified by certain characteristics which one may encounter in thrombotic thrombocytopenic purpura. Nevertheless, because of the short duration of life presupposed in the latter diagnosis, such is not being made even though the diagnosis of thrombotic thrombocytopenic purpura might be entertained here. From what I know from my reading it appears that the course has been too prolonged unless it related only to the symptoms occurring in the few months which preceded admission to the hospital.

DR. JOHN SHAPIRO:

*Final Pathologic Diagnosis.* Thrombotic Thrombocytopenic Purpura.

At the time of autopsy, the macular erythematous rash over the cheeks and bridge of the nose persisted. Petechial and purpuric hemorrhages were noted in abundance in the skin, mucous membranes and serosal surfaces. Moderate amounts of blood-tinged fluid were present in the pleural and abdominal cavities.

There was mild cardiac hypertrophy and

dilatation without valvular defects. No evidence of endocarditis was found. Aside from moderate prominence of the abdominal and thoracic lymph nodes, enlargement of the spleen to 600 Gm., apparently resulting from engorgement and evidence of a hemorrhagic diathesis, the gross findings were not remarkable. Unfortunately, permission was not granted for examination of the central nervous system.

The primary microscopic lesion was the presence of numerous capillary and small venous hyaline thrombi particularly prominent in heart, lungs, kidneys, lymph nodes and bone marrow, though they could be found on careful search in most organs. These thrombi appeared to be of somewhat variable age. In some, re-covering by endothelium (Fig. 1) was underway, in others the thrombosis appeared to be very recent (Fig. 2). The thrombosed vessels did ap-

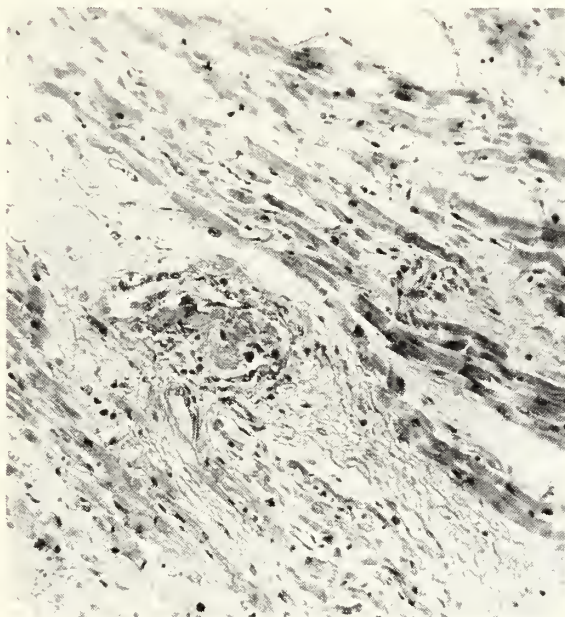


FIG. 1. Myocardium. Vascular space, probably distended capillary space, containing thrombus showing organization.

pear dilated, in accordance with the diffuse dilatation of such occluded vessels as demonstrated by Orbison, by serial section reconstruction. It seems, however, that this dilatation could well be secondary to the thrombosis and not the predisposing lesion to thrombosis. Vascular walls seemed normal and it is difficult to believe in this case that the initial lesion is in the vascular walls with secondary thrombosis. The supposition that the thromboses are composed

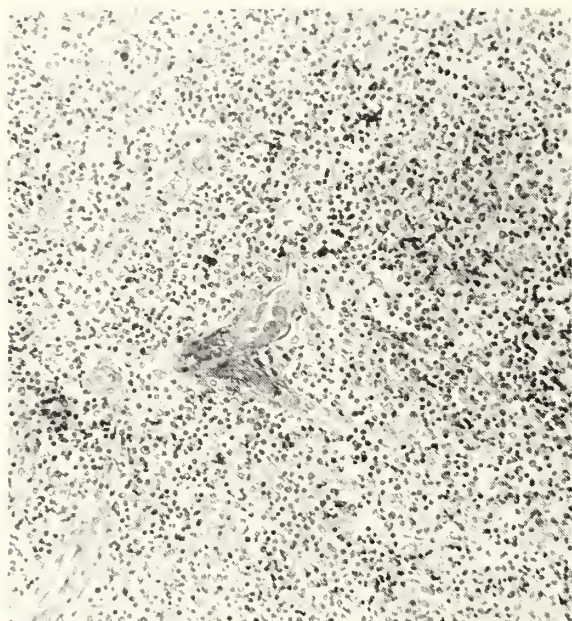


FIG. 2. *Lymph Node.* Capillaries filled with fresh hyaline thrombi.

of platelet aggregates could not be substantiated or dispelled by our findings in this case. When platelets fuse to form thrombi, their identification becomes very difficult. It seems to me that quantitative localization of platelet antibody labeled with fluorescein offers the best chance now to settle the question as to whether the thrombi in this disease state are composed

primarily of platelets, an assumption adhered to by some authors and denied by others.

There is temptation to relate this disease state to lupus erythematosus disseminatus. The points in this case suggesting such relationship have been reviewed by Dr. Kampmeier. No definite linkage in anatomic lesions seen in this case and in those seen in disseminated lupus can be established. There was an unusual glomerular lesion in the case at hand.

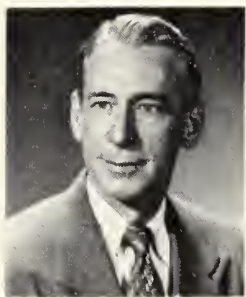
The previous diagnosis of lymphosarcoma on a surgically excised lymph node merits comment. The enlargement noted at autopsy is explained on the basis of edema with numerous small vessel thrombi. Rather large numbers of immature lymphocytes suggest a participation of the lymphoid apparatus in the disease state, but there is nothing to indicate neoplastic proliferation.

#### References

1. Moschowitz, E.: An Acute Febrile Phiochromis Anemia with Hyaline Thrombosis of the Terminal Arterioles and Capillaries, an undescribed disease, *Arch. Int. Med.* 36:89, 1925.
2. Orbison, J. L.: Morphology of Thrombotic Thrombocytopenic Purpura with Demonstration of Aneurisms, *Am. J. Path.* 28:129, 1952.



## President's Page



JAMES C. GARDNER

In reviewing the actions of the Tennessee General Assembly, many outstanding things are brought into focus.

I want to discuss doctors' participation in legislative affairs since our Association has seen lethargy on

the one hand and on the other, concentrated action by our members.

Early in the legislative session, the principal measure sponsored by TSMA was House Bill 80 and Senate Bill 65, a bill which would re-define the practice of medicine. Our Legislative Committee worked up this bill over the past two years. All facets of the bill were carefully studied. We sought and obtained the State Administration's support, yet we failed to enact the bill into law due to insufficient efforts from our membership in contacting their legislative representatives to sell them on the importance of the bill.

Yet on Senate Bill 324, one which would impose a privilege tax upon self-employed and other professional people, doctors rallied throughout the State into militant action to oppose this measure and we defeated it. Both of these bills were important to us, yet we failed on the one and succeeded on the other. Now why?

Doctors have a big stake in politics. We have much to lose. We, perhaps, have little to gain. When our legislators come to Nashville at the time the State Legislature meets, it is too late to put over our proposals. It must be done before our representatives come to the Capitol. They must be contacted by doctors and our proposals explained. Doctors must get to know their representatives and express their views on medical legislation and be familiar enough with the legislator so that he could write or call him at any time.

Your State Legislator, Congressman or

Senator looks to his local constituents for advice and guidance. He will be influenced by you only as to how he may vote on any given medical subject. Is your County Medical Society, and are the individual members of your County Medical Society meeting their responsibility in this field? From my experience, I do not believe they are.

The para-medical opponents to our bill to define the practice of medicine flooded the legislators and the governor with more than 5,000 letters and telegrams objecting to the contents of the bill. Our staff worked to the limits of their authority to contact "key doctors" who had been organized for such purposes, to contact legislators, inform them and express their personal views on legislation sponsored by the Medical profession.

I talked with a number of legislators and almost without exception, they reported that no doctor had contacted them. This is where we are falling down. *We must do something about it.* At home is the place where legislators are influenced. Stands must be taken before the legislator comes to Nashville or goes to Washington.

Our whole membership must awaken to the fact that segments of the public and many legislators are not overly fond of doctors. Your representatives must be contacted personally and our projects and views made known to them in an effort to obtain their support.

The political capabilities of organized medicine are tremendous. *If ever the science, art and economics of medicine, as we know it, become blotted, degraded, or disintegrated, it will be because of applied politics or the lack of it.*



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MARCH, 1959

## EDITORIAL

### POLIOMYELITIS IMMUNIZATION

If an average practitioner in Tennessee had been approached a few years ago with the question,—how would an effective immunization against poliomyelitis be received by the public, the answer would have been,—with wide-open welcoming arms! But has this prediction been true? Two years ago the answer would have been “yes,” but now we must admit rather sadly that the public has failed to appreciate the wonderfully protective possibilities of the Salk vaccine.

The initial reception by the general population was desirable and, as the incidence of poliomyelitis dropped, the battle against this dread disease seemed to have been won. So much so, that The National Foundation for Infantile Paralysis actually sought new fields to conquer. Rheumatism and congenital disease were selected as substitute foes for the Poliomyelitis Foundation. But what has happened? The incidence of

poliomyelitis for the years 1953-1957 averaged 24,736 per year. In 1957 there were 5,485 cases, but in 1958 the occurrence increased to 6,031. In Tennessee there had been an average incidence of 353 cases per year. This dropped to 160 in 1957 and encouragingly enough further declined to 134 in 1958. This may reflect the excellent job done in Tennessee by the State Department of Health and organized medicine in this state. Recent publications by Batson and his co-workers,<sup>1</sup> and private communications from Batson<sup>2</sup> have shown that in the immunization of infants and children the antibody titre rises after the second injection of Salk vaccine, and particularly after the third injection. However, one year after the third injection of vaccine the serum titre for protective antibodies has fallen to the prevaccination level. Batson, for the past year, has stressed the necessity for the fourth dose of vaccine. Recently the Infectious Disease Committee of the American Academy of Pediatrics, has gone on record favoring this fourth injection. Even more recently Salk himself has acknowledged the desirability and necessity of a fourth injection in the immunization program against poliomyelitis.

Certain facts stand out from a study of the epidemic which occurred in Detroit, Michigan last year.<sup>3</sup> In that city, in the years of 1949-1958, there had been a yearly incidence of poliomyelitis which varied from 500 to 748. For the first eleven months of 1958, 627 cases were seen. Fifty per cent of these were paralytic, and 61.4 per cent were under the age of 5. Of the paralytic cases, 4.8 per cent had received three or more injections of vaccine, but more impressive in this paralytic group was the fact that 75.3 per cent had never been vaccinated. Among the nonparalytic cases, 38.4 per cent had received three injections of vaccine.

At the present there are in the Nation between 1700 and 1800 patients using respiratory aids.<sup>4</sup> No data are available on the number of new respiratory cases in 1958, but in the past polio patients with respiratory involvement have constituted approximately 15 per cent of the paralytic case load.

The Polio Foundation estimates that in

our population of 174.9 million, 77.2 million (44 per cent) have received one or two doses of vaccine, 56.5 million (32 per cent) three doses, 3.9 million (2 per cent) four or more doses, and 97.7 million (56 per cent) have never received the vaccine. Under the age of 40, 72.3 million (64 per cent) have received one or two doses, but only 53 million (47 per cent) have received three injections. These figures are of particular interest and importance when it is noted that, in 1955, 28,985 cases of polio were reported of which 47.8 per cent were paralytic, in 1956, 15,140 cases (52.2 per cent paralytic), in 1957, 5,926 cases (36.7 per cent paralytic), and in 1958, 6,061 cases (51.8 per cent paralytic).

The lesson is that poliomyelitis has not only not disappeared, but may actually be increasing again in incidence; that the incidence of paralytic polio is actually increased; that the majority of our population has not been vaccinated and that one-third of our most susceptible population (under 40 years of age) has not been protected.

The question of the number of injections of vaccine necessary to produce immunity is debatable, but probably four are necessary. It is quite within the realm of possibility that new developments may even result in the employment of a new or improved vaccine rather than the Salk material.

The challenge to the medical profession is clear-cut and unavoidable. In some manner we, as a professional group, must get this program across. It would be unthinkable to withhold means of extinguishing a fire in a valuable burning building. It is equally unthinkable that some manner of legal compulsion, similar to that which governs smallpox vaccination, is not summoned in this program.

A. W.

<sup>1</sup>Batson, Randolph, and Christie, Amos: Immunization Methods and Materials, *J. Pediat.* 53:51, 1958.

<sup>2</sup>Batson, Randolph: Personal Communication.

<sup>3</sup>Molner, Joseph G., Brady, Jacob A., and Agate, George H.: Detroit Poliomyelitis Epidemic 1958, Special Bulletin-Detroit, Wayne County Health Department.

<sup>4</sup>Stickler, Gabriel: Director of Statistical Services, The National Foundation.

## "THE HIGH COST OF HEALTH"

This is the title of a booklet containing nine articles on the cost of medical care by Charles G. Brooks,<sup>1</sup> staff writer of the *Washington Star* of Washington, D. C. These nine articles appeared in January of this year. The lead article was entitled, "Rising Medical Bills Worry Many Today."

Though they deal with the costs of medical care in the District of Columbia, the basic facts and factors of such costs apply to all segments of our country. Furthermore, if the reader will try to remain objective, irrespective of any biases he may have, this series represents just about as fair an analysis of the situation as one can ever hope for from a layman. This series of articles is particularly timeworthy since a Senate subcommittee is supposed to hold hearings on the matter of medical costs in the District at about this time. It appears that last fall, when Blue Cross premiums were increased, labor and other groups protested and Senator Morse and his Senate subcommittee held some preliminary hearings on the matter. Presumably as the result of the hue and cry the District Medical Society announced it had in preparation a "relative value scale" to guide doctors in setting fees, of course on a voluntary basis.

In the next three discussions Brooks took up hospital costs and how they are reflected in the charges made patients. He described well for the reader the hidden costs, the effects of inflation, the care of the medically indigent, the high percentage of unpaid hospital bills, the high costs of modern technical aids, and laboratory technicians. If the newspaper reader was awake when reading these three articles on hospital costs, he found he had been clearly and emphatically told that the "room and board" in the hospital involves a great deal which sets it off from the "room and board" of a hotel. The physician reader can only wish that all of his patients had had the opportunity to absorb this story before they begin to complain about the expense of being ill, for which in no small part the doctor is thought to be at fault.

The next article on "Doctors' Fees Facing Scrutiny" again mentions the "relative value scale" in fees in preparation by the District of Columbia Medical Society. How-



ever, it is an honest portrayal of the physician's investment at graduation, his long hours, his charity work and the financial status of the average doctor as that of the upper middle class, and not that of an actually wealthy man, and that, if wealthy, fortunate investments or family money represent the source of wealth. In the discussion of "Congress to Examine Specialists' Fees," Brooks is quite fair in his comparisons of fees in the several specialties. He discusses especially the hospital-specialist relationships of radiologists, pathologists and the like.

"Those Costly Drugs Pay Off in Long Run" provides an unbiased and sensible discussion of the expensive antibiotics, say, but at the same time points out how they have reduced the length of illness and the attendant expenses, leave alone the mortality rate. He describes the 10 per cent net profit only made by druggists.

The "Growth of Insurance Shows Public Alarm" offers the opportunity to talk about the several types of health and hospital insurance, and the "pros and cons" for this type or that.

In his "Middle Class Squeezed by High Medical Costs," Charles Brooks predicts that Senator Morse's investigation will touch on: "Do doctors charge too much? Are hospitals throwing money away? Are pharmaceutical manufacturers profiteering at the public's expense? Is the medical profession hampering the proper workings of medical insurance plans?"

Some believe that with still more extension of plans for voluntary health insurance there will be a still greater trend toward a voluntary setting of fees by the profession itself. An insurance plan of some type will include most people of the country in the not far distant future.

Hospital costs remain the greatest and most insoluble problem and it will take a Solomon to settle it. Recently, on these pages "Progressive Patient Care" was discussed, and the point made that certain types of hospital care can be provided for the patient not too ill, who can care for some of his wants, at a lower cost than for the seriously ill patient. Some of this type

of planning is essential for the future of American medicine.

This series of articles though not containing anything new to the average physician deserves perusal and recommendation to his patients for reading. (A small supply of these booklets may be a good investment. Given to the intelligent "reading" patient it may open his eyes to many of the problems both he and the doctor face in the costs of illness.)

R. H. K.

Editorial: *Progressive Patient Care*, J. Tenn. M. A. 5:477, 1957.

Brooks, Charles G.: *The High Cost of Health*, (Reprint 1-59) Washington, D. C., Public Relations Department, the Washington Star. (\$3.00 per 50 copies.)



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### *General Information*

#### ► *Registration*

The registration desk will be located in the main lobby of the Peabody Hotel. All members, visiting speakers, interns, residents, and guests are urged to register. There is no registration fee. Printed programs are available at the registration desk.

MISS WILLARD BATEY  
Chief Registrar

#### ► *Registration Hours*

Sunday, April 12—11:00 A.M. (Special Registration for Members of House of Delegates from 11:00 A.M. to 1:00 P.M.) Advance registration for Exhibitors and early arrivers from 3:00 P.M. to 5:00 P.M.

Monday, April 13—8:00 A.M. to 5:00 P.M.

Tuesday, April 14—8:00 A.M. to 5:00 P.M.

Wednesday, April 15—8:00 A.M. to 12:00 Noon

#### ► *Convention Headquarters*

Headquarters are in the Peabody Hotel where most activities are scheduled. Practically all of the specialty groups will conduct their meetings in the Peabody Hotel concurrently with TSMA.

#### ► *President's Banquet and Social Hour*

The President's Banquet will be preceded by a social hour sponsored by the Memphis and Shelby County Medical Society, beginning at 6:00 P.M. on Monday evening, April 13th. The banquet will follow at 7:00 p.m. in the Continental Ballroom. Tickets are available at the registration desk.

#### *Emergency Telephones*

Memphis—JA 7-2426 and JA 7-2427

Telephone service will be installed for your con-



venience on the mezzanine floor of the Peabody Hotel. In-coming emergency calls for attendants to the meeting will be handled. You will be notified of your call by a "flash screen" in the auditorium and you will be paged when necessary. Notify your secretary or acquaintances to contact you during the annual meeting. The EMERGENCY NUMBER—MEMPHIS—

*JA 7-2426 and JA 7-2427*

#### ► Tickets

Tickets to the President's Banquet will be available at the registration desk. Tickets to specialty luncheons and banquets, as well as the Woman's Auxiliary affairs, can be obtained from their respective registration desks. Purchase your tickets at the time of registration. The Woman's Auxiliary Registration Desk will also be in the main lobby of the Peabody Hotel.

#### ► Headquarters Workroom

Rooms Number 202 and 203, located on the mezzanine floor of the Peabody Hotel will be the official workrooms and headquarters offices for the Association during the meeting. A member of the staff will be available to assist you at all times. Members of the House of Delegates, Officers, and Reference Committee Chairmen can secure secretarial help if needed. Your headquarters staff is available to assist you to meet your needs.

J. E. BALLENTINE, *Executive Secretary*  
JACK DRAKE, *Public Service Director*  
MISS WILLARD BATEY, *Records & Bookkeeper*  
MRS. JAN MCGEE, *Secretary*  
MRS. JEAN RAGSDALE, *Secretary*  
MISS BETTY TAYLOR, *Asst., Postgraduate Committee*

#### ► Technical Exhibitors

The technical exhibits will be located in the main lobby and mezzanine floors of the Peabody Hotel and may be visited each day of the annual meeting beginning on Monday, April 13th from 9:00 A.M. until 5:00 P.M. and on Wednesday, April 15th from 9:00 A.M. until 1:00 P.M. These exhibits are an important part of the 124th annual meeting and each physician will be well repaid by spending some time inspecting them.



## ANNOUNCEMENTS AND SPECIAL MEETING NOTICES

### President's Banquet

Peabody Hotel

Monday, April 13—7:00 P.M.

(Social Hour 6 P.M.)

Peabody Hotel

James C. Gardner, M.D., President, Presiding.  
Guest Speaker—Hon. Robert J. Farley, Dean of School of Law, University of Mississippi, Oxford.  
Introduction of President-Elect—Harmon L. Monroe, M.D.

Special Awards:

Presenting Tennessee's outstanding physician of the year by Joseph W. Johnson, Jr., M.D., Speaker of the House of Delegates.

Presenting Health Project Contest Winner by

W. O. Vaughan, M.D., Chairman, Board of Trustees.



## Woman's Auxiliary to the Tennessee State Medical Association April 12-13-14-15, 1959—Peabody Hotel

### Registration

Sunday, April 12—2:00 P.M.-4:00 P.M.  
Monday, April 13—9:30 A.M.-4:30 P.M.  
Tuesday, April 14—9:30 A.M.-12:00 Noon

### Sunday, April 12, 1959

2:00 P.M.-4:00 P.M. Special Committee Meetings

### Monday, April 13

9:30 A.M. Registration  
9:30 A.M. Pre-Convention Board Meeting—Room 215  
7:00 P.M. President's Banquet—Continental Ballroom

### Tuesday, April 14

9:30 A.M. General Session—Venetian Room  
12:30 P.M. Luncheon (Place to be announced)

### Wednesday, April 15

9:30 A.M. Post-Convention Board Meeting Room 215

Members may register each day at the registration desk located in the main lobby of the Peabody Hotel.

### Board of Trustees

The Board of Trustees will meet in Room 214 at 9:00 A.M. on Wednesday, April 15.

### Scientific Exhibits

Several interesting scientific exhibits will be displayed on the mezzanine floor, near the Georgian room.

### Tennessee Medical Foundation

A dutch breakfast will be conducted at 8:00 A.M. on Wednesday, April 15th for all members of the Foundation. A membership meeting will be conducted immediately following. All members of the Foundation are invited to attend. This will be an important business meeting.

### Arts and Crafts Exhibit

The Arts and Crafts Exhibit will be in the Peabody Hotel located in Rooms 306-10 and 303-07. It is sponsored by the Woman's Auxiliary to TSMA. It is open to doctors and their wives.

### Monday, April 13

9:30 A.M.-4:30 P.M.—Arts and Crafts Show Room 306-10

### Tuesday, April 14

9:30 A.M.-4:30 P.M.—Arts and Crafts Show Room 306-10

### Wednesday, April 15

9:00 A.M.—Reclaim entries from Arts and Craft Show

### Public Health Council

The Public Health Council will meet in Room 201 at 9:00 A.M. on Monday, April 13.

## Technical Exhibits

Technical exhibits for the 1959 Annual Meeting will be housed on the mezzanine and main lobby floors of the Peabody. The newest developments in pharmaceuticals, equipment and services will be on display, with full information available through trained and experienced representatives.

Exhibits will be open daily from 9:00 A.M. to 5:00 P.M. All physicians will find their time well spent in visiting the exhibits and keeping abreast of what is new and useful. **Your Attendance Is Urged**, for your own benefit as well as for an expression of cooperation with our exhibitors.

ABBOTT LABORATORIES	Mezzanine	FRED KREMP COMPANY	Main Lobby
North Chicago, Illinois	Booth 25	Memphis, Tennessee	Booth 2
A. S. ALOE COMPANY	Mezzanine	THE LANIER COMPANY	Mezzanine
St. Louis, Missouri	Booth 32	Atlanta, Georgia	Booth 35
AUDIO-DIGEST FOUNDATION	Mezzanine	LEDERLE LABORATORIES (Div. American Cyanamid Co.)	Mezzanine
Glendale, California	Booth 31	Pearl River, New York	Booth 28
BAKER LABORATORIES, INC.	Mezzanine	ELI LILLY & COMPANY	Mezzanine
Cleveland, Ohio	Booth 29	Indianapolis, Indiana	Booth 27
BRAYTEN PHARMACEUTICAL COMPANY	Mezzanine	J. A. MAJORS COMPANY	Main Lobby
Chattanooga, Tennessee	Booth 44	Dallas, Texas	Booth 12
CIBA PHARMACEUTICAL PRODUCTS, INC.	Main Lobby	S. E. MASSENGILL COMPANY	Mezzanine
Summit, New Jersey	Booth 9	Bristol, Tennessee	Booth 40
THE COCA-COLA COMPANY	Mezzanine	MEAD JOHNSON & COMPANY	Mezzanine
Atlanta, Georgia	Booth 45	Evansville, Indiana	Booth 20
DAIRY COUNCIL OF TENNESSEE	Mezzanine	MEDCO PRODUCTS COMPANY	Mezzanine
Memphis, Tennessee	Booth 46	Tulsa, Oklahoma	Booth 50
EATON LABORATORIES, INC.	Mezzanine	MERCK, SHARP & DOHME	Mezzanine
Norwich, New York	Booth 51	Philadelphia, Pennsylvania	Booth 19
THOMAS A. EDISON COMPANY	Main Lobby	MID-SOUTH X-RAY COMPANY	Main Lobby
Nashville, Tennessee	Booth 1	Memphis, Tennessee	Booth 7
EISELE & COMPANY	Mezzanine	MILEX PRODUCTS	Main Lobby
Nashville, Tennessee	Booth 37	Peoria, Illinois	Booth 17
FEDERAL FINANCIAL RECOVERY SERVICE	Mezzanine	C. V. MOSBY COMPANY	Mezzanine
Sheffield, Alabama	Booth 34	St. Louis, Missouri	Booth 49
C. B. FLEET COMPANY, INC.	Mezzanine	NASHVILLE SURGICAL SUPPLY COMPANY, INC.	Mezzanine
Lynchburg, Virginia	Booth 16	Nashville, Tennessee	Booth 33
GEIGY PHARMACEUTICALS	Mezzanine	P & S X-RAY COMPANY	Main Lobby
Yonkers, New York	Booth 21	Nashville, Tennessee	Booth 8
JOHN HANCOCK MUTUAL LIFE INS. CO.	Mezzanine	PARKE, DAVIS & COMPANY	Mezzanine
Boston, Massachusetts	Booth 42	Detroit, Michigan	Booth 24
THE HEALTH INSURANCE COUNCIL	Main Lobby	PFIZER LABORATORIES	Mezzanine
New York City, N. Y.	Booth 6	Brocklyn, New York	Booth 30
KAY SURGICAL, INC.	Mezzanine	WM. P. POYTHRESS & COMPANY, INC.	Mezzanine
Memphis, Tennessee	Booth 38	Richmond, Virginia	Booth 23
KNOLL PHARMACEUTICAL COMPANY	Main Lobby	A. H. ROBINS COMPANY, INC.	Mezzanine
Orange, New Jersey	Booth 10	Richmond, Virginia	Booth 41
		SCHERING CORPORATION	Mezzanine
		Bloomfield, New Jersey	Booth 26
		G. D. SEARLE & COMPANY	Mezzanine
		Chicago, Illinois	Booth 36
		SMITH, REED, THOMPSON & ELLIS COMPANY	Mezzanine
		Nashville, Tennessee	Booth 53

E. R. SQUIBB & SONS  
New York City, N. Y.      Main Lobby  
Booth 11

SOUNDScriber Dictating Systems Company  
Memphis, Tennessee      Main Lobby  
Booth 15

Southern Drug & Manufacturing Company  
Knoxville, Tennessee      Mezzanine  
Booth 39

Sovereign States Insurance Company  
Nashville, Tennessee      Mezzanine  
Booth 48

THEO TAFEL COMPANY  
Nashville, Tennessee      Mezzanine  
Booth 52

Tennessee Guild Opticians  
Mezzanine  
Booth 43

U. S. Vitamin Corporation  
New York City, N. Y.      Main Lobby  
Booth 3

THE UPJOHN COMPANY  
Kalamazoo, Michigan      Main Lobby  
Booth 5

Vanguard Pharmaceutical Corporation  
Cedar Grove, New Jersey      Main Lobby  
Booth 14

VAN PELT & BROWN, INC.  
Richmond, Virginia      Main Lobby  
Booth 4

Westwood Pharmaceuticals  
Buffalo, New York      Mezzanine  
Booth 22

#### VISIT THE EXHIBITORS

The general scientific meetings will be recessed in mid-mornings for thirty minutes each day to give doctors an opportunity to visit the exhibitors.

J. E. BALLENTINE  
Director of Exhibits



## PROGRAM

### Sunday, April 12, 1959

1:00 P.M. (C.S.T.)

House of Delegates, Georgian Room

Peabody Hotel—Memphis



## SPECIALTY SOCIETIES



TENNESSEE SOCIETY OF  
ANESTHESIOLOGY

Sunday, April 12, 1959

Room 201  
10:00 A.M.  
Business Meeting

12:00 Noon  
Luncheon—Pompeian Room

1:00 P.M.  
SCIENTIFIC PROGRAM  
Room 201

1. "PROBLEMS PERTAINING TO OBSTETRICAL ANESTHESIA"  
By: SCOTT M. SMITH, M.D., Associate Clinical Professor of Anesthesiology, University of Utah School of Medicine, Salt Lake City, Utah.
2. "PRE-ANESTHETIC EVALUATION AND PREPARATION FOR POOR RISK PATIENTS"  
By: SCOTT M. SMITH, M.D.



## WOMAN'S AUXILIARY TO THE TENNESSEE STATE MEDICAL ASSOCIATION

APRIL 12-15, 1959  
CONVENTION HEADQUARTERS  
PEABODY HOTEL

\* \* \* \* \*

31st Annual Convention

\* \* \* \* \*

Sunday, April 12

2:00-4:00 P.M. Registration  
Main Lobby, Peabody Hotel

### Program

- 2:00 P.M. Entries accepted for Arts and Crafts Show in Room 306-10 (Until 4:00 P.M.)
- 2:00 P.M. Special committee meetings—Awards, Revisions, Finance, will be conducted in the Presidents suite, Peabody Hotel.

### Hostess Auxiliary

The Woman's Auxiliary of the Memphis-Shelby County Medical Society



## Monday, April 13, 1959

### General Practice Day

### General Scientific Program

(Jointly presented in cooperation with the Tennessee Academy of General Practice)  
Category I credit approved

Continental Ballroom

Peabody Hotel

JOHN P. LINDSAY, M.D., Nashville, President, Tennessee Academy of General Practice, Presiding

9:00 A.M.

Employ of the Physically Handicapped in the State of Tennessee

By: DR. MARCUS J. STEWART, Memphis  
Discussed by: DR. R. B. WOOD, Knoxville

9:30 A.M.

The Roll of the Anesthesiologist in the Practice of Medicine

By: DR. SCOTT M. SMITH, Associate Clinical Professor of Anesthesiology, University of Utah, Salt Lake City, Utah



**Visit Exhibits**

10:00 A.M.

10:30 A.M.

**Antibiotic Resistant Staphylococcal Disease**

By: DR. WILLIAM SANDUSKY, Associate Professor of Surgery, University of Virginia, Charlottesville, Virginia

11:10 A.M.

**SYMPOSIUM—Peripheral Vascular Disease—Its Management**

Moderator, DR. HARWELL WILSON

**Aorto-iliac Occlusive Disease**

DR. JAMES A. KIRTLEY, Nashville

**Varicose Veins**

DR. RUDOLPH LANDRY, Chattanooga

**Acute Arterial Injuries**

DR. BRUCE McCAMPBELL, Knoxville

**SPECIALTY SOCIETIES****TENNESSEE ACADEMY OF GENERAL PRACTICE**

MONDAY, APRIL 13, 1959

8:00 A.M.

Registration

Main Lobby

9:00 A.M.—12:00 Noon

General Scientific meeting jointly with TSMA  
Category I Credit

Continental Ballroom—Peabody Hotel

**SCIENTIFIC PROGRAM**

(Category I Credit Approved)

Louis XVI Room

1:30 P.M.

DR. JOHN L. ARMSTRONG, Vice-President, Tennessee Academy of General Practice, Presiding.

**Invocation**

1:30 P.M.—3:30 P.M.

**Panel Discussion:****The Early Recognition and Management of Commonly Encountered Chest Conditions**

**Panel Members:** Diplomates of the American Board of Surgery and Thoracic Surgery:

DR. WILFORD H. GRAGG, JR., Memphis, Tennessee

DR. WILLIAM E. VANFLEIT, Atlanta, Georgia

DR. FREDERICK H. TAYLOR, Charlotte, N. C.

**Moderator:** DR. J. E. HOLMES, President-Elect, Memphis Academy of General Practice  
3:30 P.M.—4:30 P.M.

**Business Session:** DR. JOHN P. LINDSAY, President, presiding

**TENNESSEE CHAPTER AMERICAN COLLEGE OF SURGEONS**

MONDAY, APRIL 13, 1959

**WELCOME**

The Tennessee Chapter, A.C.S. extends a cordial invitation to all physicians attending the TSMA meeting, to be the guests at the scientific sessions of the ACS on Monday, April 13, and Tuesday, April 14. Residents, interns and students are especially welcome.

**PROGRAM**

HARWELL WILSON, M.D.—Presiding

The Program is Presented By: The Department of

Surgery, College of Medicine of the University of Tennessee

Institute of Pathology Auditorium  
858 Madison Ave.  
Memphis

1:30 P.M.

**Cancer of the Colon in Young People (10 min.)**

FENWICK CHAPPELL, M.D.

**Carcinoma of the Thyroid (10 min.)**

W. DAVID DUNAVANT, M.D.

**Ovarian Cystectomy for Dermoid (25 min.) Motion Picture**

PHIL SCHRIER, M.D.

**Guest Essay—Chemotherapy as an adjuvant to Surgery in the Treatment of Cancer**

JOHN FARRELL, M.D.—Miami, Florida

**Questions and Answers (20 min.)**

EDWARD STORER, M.D., presiding

**Guest Essay—The Selection of an Operation for Pseudocyst of the Pancreas**

WILLIAM SANDUSKY, M.D.—Charlottesville, Virginia

**Ulcerative Colitis—Surgical Pathological Study (10 min.)**

GEORGE LUMB, M.D.

**Fibrinolysis and Fibrinogenopenia (10 min.)**

L. W. DIGGS, M.D.

**Trans Ventricular Aortography (10 min.)**

FELIX HUGHES, M.D.

(Ten minutes is allowed for the presentation of most papers. Essayist are urged to adhere to the schedule leaving details to be presented in the manuscript which may be submitted to the TENNESSEE MEDICAL JOURNAL.)

**Council Meeting at Close of Session****TENNESSEE RADIOLOGICAL SOCIETY**

MONDAY, APRIL 13, 1959

Room 213, Peabody Hotel

12:00 Noon

Luncheon—Room 213

**PROGRAM**

1:00 P.M.

**Business Meeting****Scientific Presentation:****The Lumbar Spine**

ROBERT D. MORETON, M.D., Fort Worth, Texas

Following the address of Dr. Moreton, there will be a film reading session. This will complete the program.

**Film Reading**

Participants will expertly diagnose films of proven cases to be submitted by members or guests. Cases to be submitted for diagnosis should be meritorious by virtue of their peculiar nature and supported by films of good diagnostic quality.

**TENNESSEE SOCIETY OF PATHOLOGISTS**

MONDAY, APRIL 13, 1959

12:00 Noon

Luncheon

Pompeian Room

**SCIENTIFIC PROGRAM**

Pompeian Room

1:00 P.M.

**The Pathology of Arthritides**

WALTER G. J. PUTSCHAR, M.D., of the Armed Forces Institute of Pathology, Washington, D. C.

2:00 P.M.

**A Study of Lipoproteins in Coronary Artery Disease**

R. J. LEFFLER, M.D., Knoxville, Tennessee

2:15 P.M.

**The Ferrata Cell**

L. W. DIGGS, M.D., Memphis, Tennessee

2:30 P.M.

**Experiences with Cytology of the Genito-Urinary Tract in Males**

HERMAN BERNHARDT, M.D., Memphis, Tennessee

2:45 P.M.

**Metastasizing Malignant Bronchial Adenoma Producing a Carcinoid Syndrome**

YOON C. KIM, M.D., Memphis, Tennessee

3:00 P.M.

**Intermission**

3:15 P.M.

**Secondary Fungus Infections of the Lung**

R. D. GOURLEY, M.D., Memphis, Tennessee

3:30 P.M.

**Fatal Anaphylaxis to Antibiotics**

J. ROBERT TEABEAUT, II, M.D., Memphis, Tennessee

3:45 P.M.

**Epithelial Nasal Polyps**

JIMMY L. VERNER, M.D., Memphis, Tennessee

4:00 P.M.

**Squamous Carcinoma Arising in Scars and Fistulous Tracts**

J. M. YOUNG, M.D., Memphis, Tennessee

The last paper will be followed by a business meeting.

6:00 P.M.

**Fellowship Hour****TENNESSEE THORACIC SOCIETY**

MONDAY, APRIL 13, 1959

Room 200—Peabody Hotel

12:15 to 1:30 P.M.

**Luncheon and Business Meeting      Room 200**  
**SCIENTIFIC PROGRAM**

1:30 to 2:00 P.M.

**Cytological Studies in the Diagnosis of Esophageal Carcinoma**

DUANE CARR, M.D., EDWARD F. SKINNER, M.D.,  
JOHN R. HALL, M.D., Memphis, Tennessee

2:00 to 2:30 P.M.

**Crushed Chest Syndrome**

FOSTER HAMPTON, JR., M.D., Chattanooga, Tennessee

2:30 to 3:30 P.M.

**Tuberculin Testing Program**

DANIEL E. JENKINS, M.D., Baylor University,  
Houston, Texas, sponsored by the Tennessee  
Tuberculosis Association

3:30 to 4:00 P.M.

**Diagnosis and Treatment of Sarcoidosis**

THOMAS B. HALTON, M.D., Nashville, Tennessee

4:00 to 4:30 P.M.

**Tracheal Fenestration Operation for Pulmonary Insufficiency**

FELIX HUGHES, M.D., JAMES PATE, M.D., ROGER  
CAMPBELL, M.D., WESLEY JONES, M.D. of Mem-  
phis, Tennessee

**WOMAN'S AUXILIARY  
TO**

**TENNESSEE STATE MEDICAL  
ASSOCIATION**

Registration—Main Lobby—9:30 A.M.

Room 215

**PROGRAM**

MONDAY, APRIL 13, 1959

9:30 A.M.

**Arts and Crafts Show**—Hospitality Room—  
Third floor of Peabody Hotel, Room 306-10

9:30 A.M.

**Pre-Convention Board Meeting**—Room 215

12:30 P.M.

**Luncheon**—Honoring past Presidents,  
Hotel Peabody

3:00-5:00 P.M.

**Tea**—At home of MRS. A. ROY TYRER, JR., 621  
South Willett. (Sponsored by Woman's Aux-  
iliary, Memphis and Shelby County Medical  
Society)

6:00 P.M.

**Social hour**—Venetian Room

7:00 P.M.

**Presidents Banquet**—Continental Ballroom



**TENNESSEE STATE OBSTETRICAL  
AND GYNECOLOGICAL SOCIETY**

MONDAY, APRIL 13, 1959

Georgian Room

Peabody Hotel

**PROGRAM**

1:00 P.M.

**Business Meeting**

**Election of Officers**

**Approval of new memberships in the Society**



**TENNESSEE ACADEMY OF OPHTHAL-  
MOLOGY AND OTOLARYNGOLOGY**

MONDAY, APRIL 13, 1959

Room 214

Peabody Hotel

12:15 P.M.

**Luncheon**

**SCIENTIFIC PROGRAM**

1:45 P.M.

**Meeting Called to Order**

DR. WESLEY MCKINNEY, President

2:00 P.M.

**Case Report of Fibrous Dysplasia of the Skull and Face**

DR. HERBERT DUNCAN, Nashville

2:20 P.M.

**Clinical Significance of Tonography**

DRS. ALICE B. DEUTSCH and ABRAHAM CHEIJ,  
Memphis

2:45 P.M.

**An Unusual Case of Spontaneous Hemorrhage in the Primary Vitreous of a Nine-month-old Baby**

DR. ROLAND H. MYERS, Memphis

3:10 P.M.

**A Case Report of Extraction of Congenitally Subluxated Lenses**

DR. WESLEY MCKINNEY, Memphis

3:35 P.M.

**The Bulbus Nasal Tip Reduced with Surgery**  
DR. SAM SANDERS, Memphis

3:50 P.M.

**A Case Report of Carcinoma of the External Auditory Canal**

DR. JAMES BARBER, Memphis

4:10 P.M.

**An Unusual Case of Unilateral Exophthalmus in a Two-month-old Baby**

DR. ROBERT A. ANTHONY, Memphis



## Tuesday, April 14, 1959

9:00 A.M.

**House of Delegates, Georgian Room**  
**Peabody Hotel—Memphis**

### General Scientific Program

Continental Ballroom Peabody Hotel

J. T. MOORE, JR., M.D., Algood, Vice-President,  
TSMa, presiding

9:00 A.M.

**The Urethral Catheter, A Two-Edged Sword**

By: DR. GEORGE E. BECKMANN, Chattanooga  
Discussed by: DR. SAM RAINES, Memphis

9:30 A.M.

**The Pathology of Low Back Pain**

By: DR. WALTER C. J. PUTSCHER,  
From the Armed Forces Institute of Pathology,  
Washington, D. C.

10:00 A.M.

**Visit Exhibits**

10:30 A.M.

**Infertility—A Family Unit Problem**

By: DR. WILLIAM H. MASTERS, Associate Professor in Obstetrics and Gynecology, Washington University, St. Louis, Missouri.

11:10 A.M.

**SYMPOSIUM—Diuretics**

**The General Problems of Diuresis**

DR. ELLIOT V. NEWMAN, Nashville

**The Mechanism of Action of Diuretics**

DR. JAMES W. CULBERTSON, Memphis

**The Use of the Non-mercurial Diuretics**

DR. GLENN CLARK, Memphis



## SPECIALTY SOCIETIES

**TENNESSEE CHAPTER**  
**AMERICAN COLLEGE OF SURGEONS**

TUESDAY, APRIL 14, 1959

Louis XVI Room

7:30 A.M.

Breakfast for Chapter Members and Guests.  
Dutch affair for members—no tickets or reservations necessary. Guests: Residents, Guest Speakers and members of the Candidate group.

**SCIENTIFIC PROGRAM**

Continental Ballroom

H. DEWEY PETERS, M.D., presiding

1:30 P.M.

**Resident Award Essay (10 minutes)**

**Prolapse of Ileum as a Cause of Abdominal Pain in Childhood (10 minutes)**

VAN FLETCHER, M.D., Chattanooga

**Guest Essay—Hyperthyroidism in Pregnancy**

WALTER F. BECKER, M.D., New Orleans

**Cushing's Syndrome—Surgical Treatment (10 minutes)**

J. L. FARRINGER, M.D., Nashville

**Questions and Answers**

**Guest Presentation—The Abdominal Approach—For the Repair of Hiatal Hernia (Motion Picture)**

Personal narration by JAMES H. GROWDON, M.D.,  
Little Rock, Arkansas

**Blood Transfusions and the Surgeon (10 minutes)**  
CLIFFORD ARGALL, Ph.D., Memphis

**Intrahepatic Cholangiolitic Hepatitis (10 minutes)**

J. LYNWOOD HERRINGTON, JR., M.D., Nashville

**Massive Gastro-intestinal Bleeding in Children Due to Meckel's Diverticulum with Ulceration (10 minutes)**

ROBERT W. NEWMAN, M.D., Knoxville

**EVENING SESSION**

Continental Ballroom

6:30 P.M.

**Social Hour**

Sponsored by the Memphis Surgical Society

7:30 P.M.

**Banquet**

Presiding—H. DEWEY PETERS, M.D., President,  
Tennessee Chapter, A.C.S.

**Guest Speaker**

DR. C. E. BREHM, President, University of Tennessee



## TENNESSEE STATE OBSTETRICAL AND GYNECOLOGICAL SOCIETY

TUESDAY, APRIL 14, 1959

Continental Ballroom

GENERAL SCIENTIFIC MEETING

**Infertility—A Family Unit Problem**

By: WILLIAM H. MASTERS, M.D.

**Room 200**

12:00 Noon

**Dutch Luncheon**

1:00 P.M.

**SCIENTIFIC PROGRAM**

1. **Localized Perfusion for Pelvic Carcinoma**

DR. HARRY H. JENKINS

Open discussion—DR. ROBERT RUCH

2. **The Diagnosis and Treatment of Polycystic Ovarian Disease (Slides)**

DR. SAMUEL S. LAMBETH and DR. ELGIN KENTNER

Open discussion—DR. RICHARD L. JACKSON

3. **The Diagnosis and Management of Pelvic Inflammatory Disease**

DR. THOMAS MONROE

Open discussion—DR. HAROLD SCHWARTZ

4. **Present Day Status of Eclampsia Therapy**

DR. JOHN Q. ADAMS

Open discussion—DR. FRANK E. WHITACRE



6:00 P.M.

**Empire Room****Claridge Hotel**

DR. WILLIAM H. MASTERS will give a talk, restricted to members of the Shelby County Obstetrical and Gynecological Society and to members of the State OB-GYN Society. The subject will be announced at the time of the meeting. **This meeting will be stag.**

7:30 P.M.

**Empire Room****Claridge Hotel**

Cocktail hour and banquet  
No speeches except the introduction of New State Officers



## TENNESSEE PSYCHIATRIC ASSOCIATION

**TUESDAY, APRIL 14, 1959**

**Room 215****Peabody Hotel**

12:30 P.M.

**Luncheon****SCIENTIFIC PROGRAM**

1:45 P.M.

1. **Psychosomatic Correlations in Cardiospasm**  
By: SAM PASTER, M.D.  
Memphis, Tennessee
2. **The Psychologist Assistant in Private Practice**  
By: M. W. LATHRAM, JR., M.D.  
Memphis, Tennessee
3. **Some Socio Psychiatric Aspects of Advancing Years**  
By: JUSTIN ADLER, M.D.  
Memphis, Tennessee
4. **Neurogenesis of Behavior**  
By: CARROL C. TURNER, M.D.  
Memphis, Tennessee

6:30 P.M.

Cocktails and Dinner  
Memphis Country Club

**Cocktails**—Guests of the Memphis section of the Tennessee Psychiatric Association, serving as hosts. Limited to members of the State Psychiatric Association. R.S.V.P. to Dr. Carrol Turner, Memphis.



## TENNESSEE ACADEMY OF GENERAL PRACTICE

**TUESDAY, APRIL 14, 1959**

**PROGRAM****Venetian Room****Peabody Hotel**

6:00 to 7:00 P.M.

Social Hour

7:00 to 9:00 P.M.

Banquet

Invocation

**Master of Ceremonies:** ESTILL L. CAUDILL, JR., M.D.  
**Guest Speaker:** To be announced.



## TENNESSEE DIABETES ASSOCIATION

**TUESDAY, APRIL 14, 1959**

**Room 213****Peabody Hotel****SCIENTIFIC PROGRAM**

2:00 P.M.

**Gastroparesis Diabeticorum**

RICHARD L. WOOTEN, M.D., Memphis, Tennessee

2:30 P.M.

### Role of Lumbar Sympathectomy in the Treatment of Vascular Disease in the Diabetic

DOUGLAS H. RIDDELL, M.D., Nashville, Tennessee

3:00 P.M.

### Cardiorenal and Electrolyte Considerations

FRED GOLDNER, M.D., Nashville, Tennessee

3:30 P.M.

**Hypoglycemia**

ROBERT B. GILBERTSON, M.D., Knoxville, Tennessee

4:00 P.M.

CPC

4:30 P.M.

**Business Meeting**

6:00 P.M.

**Refreshments and Annual Banquet**

**Speaker:** RACHMIEL LEVINE, M.D., Chairman of the Department of Medicine, Michael Reese Hospital, Chicago, Illinois

**Subject:** Problems in the Etiology of Diabetes Mellitus



## TENNESSEE ACADEMY OF PREVEN- TIVE MEDICINE AND PUBLIC HEALTH

**Room 201****Peabody Hotel**

**TUESDAY, APRIL 14, 1959**

**PROGRAM**

12:30 P.M.

**Luncheon**

1:30 P.M.

**Scientific Program—Room 201**

**Incidence and Prevalence of Cervical Cancer; Preliminary Observations in Shelby County**

MARY WALTON, M.D., Medical Officer in charge,  
Memphis Cancer Investigation Unit, Memphis,  
Tennessee



## WOMAN'S AUXILIARY TO THE TENNESSEE STATE MEDICAL ASSOCIATION

**TUESDAY, APRIL 14, 1959**

**Peabody Hotel**

9:30 A.M.

**Arts and Crafts Show—Hospitality Room—Third floor—Room 306-10**

**Venetian Room**

9:30 A.M.

**General Session—31st Annual Convention**

**Call to order**—MRS. HORACE D. GRAY, President

**Introduction of MRS. E. ARTHUR UNDERWOOD, President, Woman's Auxiliary, American Medical Association**

**Introduction of MRS. GEORGE W. OWEN, President, Woman's Auxiliary, Southern Medical Association**

**Report of County Presidents, MRS. PERCY CONYERS, Program chairman, Moderator**

**Presentation of Health Project Winners**

12:30 P.M.

**Annual luncheon**—(Place to be announced)

MRS. E. ARTHUR UNDERWOOD, guest speaker.

**Presentation of Awards****Installation of Officers****Presentation of President's Pin and Gavel**

## TENNESSEE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

TUESDAY, APRIL 14, 1959

Room 214

Peabody Hotel

### SCIENTIFIC PROGRAM

1:45 P.M.

Meeting called to order

DR. WESLEY MCKINNEY, President

1:50 P.M.

Subretinal Drainage in Retinal Detachments

DR. FRED ROWE, Nashville

2:15 P.M.

A Case Report of Malignant Mesenchymal Tumor of the Middle Ear

DR. W. G. KENNON, Nashville

2:40 P.M.

Alpha-chymotrypsin in Cataract Surgery

DR. PHILLIP M. LEWIS and CLAUDE OGLESBY, Memphis

3:00 P.M.

Transpalatine Approach to the Nasopharynx and Posterior Nasal Cavity

DR. EDWIN W. COOKE, Memphis

3:20 P.M.

A Spot in the Right Eye

DR. WILLIAM F. MURRAH, JR., Memphis

3:45 P.M.

A Case Report of Abnormal Accommodation

DR. ALLEN LAWRENCE, Nashville

4:00 P.M.

A Case Report of Advanced Carcinoma of the Pharynx and Cervical Esophagus

DR. HERMAN G. LAVELLE, JR., Memphis



## Wednesday, April 15, 1959

### General Scientific Program

Continental Ballroom

Peabody Hotel

H. P. CLEMMER, M.D., Milan, Vice-President, TSMA, presiding

The Treatment of Tendon Injuries of the Hand

By: DR. DON L. EYLER and DR. S. BENJAMIN FOWLER, Nashville

Discussed by: DR. LEE MILFORD, Memphis

9:25 A.M.

The Newer Oral Antidiabetic Agents

By: DR. RACHMIEL LEVINE, Chairman of Department of Medicine, Michael Reese Hospital, Chicago, Illinois

10:00 A.M.

Visit Exhibits

10:30 A.M.

Esophageal Hiatus Hernia

By: DR. WILFRED H. GRAGG, Memphis

10:55 A.M.

Curable Prostatic Cancer

By: DR. JOHN M. TUDOR, Nashville  
Discussed by: DR. FONTAINE B. MOORE, Memphis

11:20 A.M.

Anticoagulant Therapy in Coronary and Cerebral

Vascular Disease."

By: DR. BURT FRIEDMAN, Memphis

Discussed by: DR. ROB ROY, Nashville



## SPECIALTY SOCIETIES

TENNESSEE MEDICAL FOUNDATION

WEDNESDAY, APRIL 15, 1959

Room 200

Peabody Hotel

8:00 A.M.

Dutch Breakfast

8:45 A.M.

Membership Business Meeting—Room 200  
Reports and Elections



## WOMAN'S AUXILIARY TO THE TENNESSEE STATE MEDICAL ASSOCIATION

WEDNESDAY, APRIL 15, 1959

Room 215

Peabody Hotel

9:00 A.M.

Collect articles from Arts and Crafts Show  
Room 306-10 (third floor Peabody Hotel)

Post-Convention Board Meeting—Room 215

MRS. WILLIAM A. GARROTT, presiding.

(Continental breakfast will be served)

## DEATHS

Dr. James B. Stanford, 72, Memphis, died January 29th in his home at Dania, Fla. He was a former President of the Memphis and Shelby County Medical Society, and President of the Tennessee State Medical Association.

Dr. Paul Gunkle Morrissey, 78, Nashville, died February 1st in St. Thomas Hospital. Dr. Morrissey had been in practice in Nashville for 52 years.

Dr. Conrad O. Bailey, 71, Memphis, died at his home on January 20th.

Dr. J. T. McFaddin, 66, Johnson City, died unexpectedly at his home on February 3rd.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Memphis-Shelby County Medical Society

On December 16th, the Society elected officers for 1959. Dr. Ralph O. Rychener was installed as president, and Dr. Duane M. Carr was named president-elect to assume the presidency in 1960. Dr. Bland W. Cannon was named vice-president. Dr. Charles J. Deere, secretary and Dr. Ben L. Pentecost, treasurer.

At the meeting on January 6, held in the

University of Tennessee's Institute of Pathology, the scientific program was presented by Dr. Blair D. Erb who presented his winning paper in an essay contest. The paper was entitled, "Dissecting Aneurysm of the Aorta—A review of 30 Autopsied Cases."

### **Roane County Medical Society**

The regular monthly meeting was held on February 24th in the Oak Ridge Hospital. The scientific program consisted of a paper entitled, "Epidemiology of Rheumatoid Arthritis" by Dr. Sidney Cobb, Graduate School of Public Health, University of Pittsburgh Medical College.

### **Greene County Medical Society**

The regular monthly meeting was conducted on February 5th. The guest speaker was Dr. Bruce R. McCampbell, Knoxville, his subject, "Diagnosis and Treatment of Thrombo-Phlebitis." Drs. Rae B. Gibson and Hal Henard were elected delegates to the Tennessee State Medical Association's House of Delegates.

### **Chattanooga-Hamilton County Medical Society**

On January 29th, the scientific meeting consisted of a program arranged by the Chattanooga area Heart Association. Morning Ward Rounds were conducted at the Baroness Erlanger Hospital, and the afternoon session was held at the Interstate Auditorium. (The program appears on page 112.)

### **Nashville Academy of Medicine Davidson County Medical Society**

The meeting of the Society was held on February 10th at Mid-State Baptist Hospital. A dinner preceded the official program. The program consisted of a panel discussion on the subject, "Prepaid Medical Insurance and Medicare." Panelists were: Dr. James A. Kirtley, chairman of the Prepaid Insurance Committee of the Tennessee State Medical Association, and chairman of the Subcommittee on Medicare; Mr. Lambert G. Schulze, Chattanooga, chairman of the Tennessee Advisory Committee, Health Insurance Council; Mr. James Waters, Assistant Director of the Tennessee Hospital

Service Association, Chattanooga; and Mr. Jack Ballentine, Executive Secretary, Tennessee State Medical Association. The panelists gave brief comments prior to a question and answer session during which members of the society presented questions of particular interest.

### **Knoxville Academy of Medicine**

The Society met in the Academy Auditorium on February 10. Dr. Jean Paul Pratt, consultant in Obstetrics and Gynecology, Henry Ford Hospital, Detroit, was the guest speaker. The subject was "Terminal Care."

### **Consolidated Medical Assembly**

The Society met in the New Southern Hotel in Jackson on February 4th. The scientific program was presented by members of the Department of Obstetrics and Gynecology, University of Tennessee, College of Medicine, Memphis. Dr. Phil C. Schrier presented a paper on "Conservative Management of Dermoid Cysts of the Ovary," discussion was opened by Dr. Swan Burrus, Jr., of Jackson. Dr. Richard L. Jackson's topic was "Abruptio Placenta--Coagulation Defects," discussion was opened by Dr. James Langdon of Jackson. Dr. John Q. Adams had as his subject, "Abruptio Placenta—Clinical Aspects," discussion was led by Dr. Allen Truex of Jackson.

### **Dickson County Medical Society**

The Society met on January 30th in the Goodlark General Hospital. Dr. J. C. Elliott was re-elected president. Others elected to office were Dr. William Jackson, vice-president and Dr. E. W. McPherson, secretary-treasurer. Dr. Parker Elrod of Centerville was the guest speaker at the meeting.

### **Five County Medical Society**

The Five County Medical Society met at Clara's Restaurant on the evening of January 15th. The guest speaker was Dr. Harrison Shull, Nashville, who spoke on the subject, "Peptic Ulcer Problem." Dr. Harold J. Crecraft, Nashville, director of the Davidson County Mental Health Center, spoke on problems in mental health, and gave an out-



line of the personnel and methods of function of the state's Mental Health Clinics. The program was followed by a lengthy question and answer session.

## NATIONAL NEWS

### Medicare Costs Running Beyond Limits

The civilian phase of Medicare will cost between \$90 and \$93.6 million for the current fiscal year ending on June 30, or \$21 million more than Congress approved. When Congress cut Medicare's civilian funds to \$72 million last year, the conference report included instructions that no more than this amount be spent. However, because the restriction was not written into the law but was merely a recommendation by Congress, Army and Air Force are able to shift funds from other accounts to make up for Medicare's shortages. Navy, however, will have to submit to Congress a deficiency appropriation for about \$6 million. The \$93.6 million figure for the current year's cost was disclosed in the budget, which also requested \$89 million for next fiscal year. Subsequently, Army Surgeon General Silas Hays, representing all services, told the Committee that the Navy would ask the extra \$6 million, and that the other two services would absorb their own shortages in Medicare funds.

### Senate Orders Year's Study of Problems of the Aged

A new subcommittee of Senate Labor and Public Welfare Committee has come into being. It plans a year-long inquiry into matters involving the country's aged population. The committee is named for "Problems of the Aged and Aging." The subcommittee will range the whole field of problems of the aged: health, housing, employment opportunities, and recreation. The subcommittee considers problems of senior citizens as one of the greatest sociological challenges facing America today.

### The Month in Washington (From the Washington Office, AMA)

Contrary to the usual procedure in a first session, the 86th Congress this year is al-

ready getting on with its work, particularly in health fields. In past Congresses not much was accomplished the first session, with most bills held over for the second.

Here are some of the developments, portending enactment before adjournment on a number of bills:

1. After hearings, a subcommittee of the Senate Banking and Currency Committee reported favorably on a housing bill that contained provision for mortgage guarantees for proprietary nursing homes. Subsequently, the measure was passed by the Senate.

At this writing the House is at work on another housing bill that also contains the section on nursing home loans. With passage by the House assumed, the question is whether the bill (containing more money than the White House wishes spent) will be vetoed, and if vetoed whether it can be enacted anyway by two-thirds majorities in both houses.

2. Without bothering with hearings, the *House Ways and Means Committee overwhelmingly approved the Keogh bill to encourage retirement plans for the self-employed*. It acted in line with the committee's established procedure to quickly reapprove bills that passed the House in the previous Congress, but not the Senate. The Keogh bill is identical with a measure that easily cleared the House in the last session but was lost in the Senate.

3. Driven forward by Chairman Carl Vinson of the House Armed Services Committee, legislation to extend the regular and doctor drafts four years rolled through the House. However, indications were that the Senate would take its time and give careful consideration to the need for a four-year extension.

★

Fifty-four Senators are supporting legislation that would project the U. S. farther into the international medical picture. It would set up an Institute of International Medical Research as part of NIH, establish an advisory council, and authorize spending of \$50 million a year for research, part of it to go to foreigners in the form of grants.

Medicine has won an argument within the new Federal Aviation Agency. As a consequence, FAA's civil air surgeon will assist

the administrator in setting standards for fitness, direct physical examination and inspection programs, advise on research needs, and evaluate all of FAA's medical personnel plans.

The President's health budget, now under scrutiny in Congress, is expected to be substantially increased. As an example of the White House efforts for economy, Mr. Eisenhower recommended \$101.2 million for Hill-Burton hospital construction grants, in contrast to \$186.2 million for the current fiscal year.

Through the Civil Service Commission, the Federal government is attempting to recruit physicians for service in this country and abroad. Salary ranges are from \$7,510 to \$12,770.

The Administration is pressing Congress to pass legislation giving the U. S. power to regulate coal-tar and other colors in foods, drugs and cosmetics. One objective is to require that manufacturers demonstrate that the colors are harmless before the products can be put on the market.

### Government Employees' Health Insurance

AFL-CIO Government Employees Council (represents 500,000 Federal employees) is proposing health insurance for all Federal workers and their families, with the United States government paying two-thirds of basic costs (maximum \$14 a month) and the employee paying the other third, plus broader protection at his own expense. The Council also proposes that the government meet the entire cost of catastrophic coverage, provided the employee has basic insurance. The employee would have choice of basic insurance, within limits.

## MEDICAL NEWS IN TENNESSEE

### Mid-South Postgraduate Medical Assembly

The 70th annual meeting of the Mid-South Postgraduate Medical Assembly was held at the Peabody Hotel, Memphis, on February 10-13. Nationally known speakers gave half hour lectures on subjects of interest to both general practitioners and

specialists. A C.P.C. was conducted on February 12th.

Seventeen physicians composed the list of guest lecturers. These included: Dr. Oliver H. Beahrs, assistant professor of surgery, Mayo Foundation, Graduate School, University of Minnesota at Rochester. His topic was "Diagnosis and Treatment of Tumors of the Neck."

Other speakers were Dr. C. Lee Buxton, New Haven, Conn., professor and chairman, Department of Obstetrics and Gynecology, Yale University School of Medicine; Dr. Robert L. Mayock, chief of the Pulmonary Section, University of Pennsylvania Hospital, Philadelphia; Dr. C. Leslie Mitchell, president of the American Orthopedic Association; Dr. Theodore R. Fetter, head of the Department of Urology, Jefferson Medical College; Dr. Alvin B. Hayles, associate professor of pediatrics, University of Minnesota; Dr. Theodore R. Walsh, professor of otolaryngology, Washington University School of Medicine, St. Louis; Dr. William D. Davis, Ochsner Clinic and Ochsner Foundation Hospital, New Orleans; Dr. Philip Thorek, associate professor of surgery, University of Illinois, Chicago; Dr. Edward A. Gaul, professor of pathology, University of Cincinnati; and Dr. Alton Ochsner, professor of surgery, Tulane University, and director of surgery at Ochsner Clinic and Ochsner Foundation Hospital in New Orleans.

More than 1,000 doctors representing seven states attended the Assembly. Dr. Omar Simmons, of Newton, Mississippi, was named president-elect of the Assembly to assume the presidency in 1960. Dr. William G. Stephenson, Chattanooga, assumed the presidency. Elected as vice-presidents were: Dr. David E. Stewart of Brownsville; Dr. L. B. Otken of Greenwood, Mississippi, and Dr. C. G. Swingle, Marked Tree, Arkansas. Dr. Thurman Crawford of Memphis was re-elected secretary-treasurer.

### Brief Summary of Medicare— Revised Plan

Following is a brief summary of the revised Medicare program which became effective October 1, 1958. Full details of the revised plans were mailed to each TSMA member in September 1958.



I. Dependents of military personnel are no longer entitled to receive the following care from civilian sources: (1) Injuries or illnesses not requiring hospitalization. (2) Pre-surgical and post-surgical tests before and after hospitalization. (3) Neonatal visits. (4) Termination visit of a referring physician. (5) Treatment of nervous and mental disorders. (6) Elective surgery.

II. Dependents residing with service personnel face the following restriction on the use of civilian medical facilities. (1) Dependents must contact a uniformed services authority to determine whether required care can be provided at a nearby military facility and must receive treatment there if it is available. (2) Only when care is not available from services facilities may the dependent receive authorized civilian care for which the government will pay expenses. (3) Only in an acute emergency requiring hospitalization may a dependent receive—without prior authorization—civilian medical care at government expense.

III. Dependents residing apart from service personnel may continue to receive authorized care from civilian sources, subject to exclusions in Part I.

### **Memphis Eye, Ear, Nose and Throat Convention**

The Memphis Eye, Ear, Nose and Throat convention opened a three day session preceding the Mid-South Postgraduate Medical Assembly, February 10-13 at the Peabody Hotel. Seven noted specialists in ophthalmology and otolaryngology lectured on such subjects as oral lesions, deafness, vertigo, glaucoma, facial paralysis, eye tumors and cataracts. More than 100 eye, ear, nose and throat specialists from seven states attended. Dr. Roland H. Myers, secretary-treasurer of the Society was host for the convention. The lecturers were: Dr. Peter C. Kronfeld of Chicago; Dr. Frank B. Walsh of Baltimore; Dr. Paul Chandler of Cambridge, Mass.; Dr. Dean M. Lierle and Dr. Clair M. Kos, Iowa City, Iowa; Dr. T. E. Walsh of St. Louis; and Dr. Frank D. Lathrop of Boston.

### **Mental Association of Middle Tennessee**

A panel discussion on mental health was

conducted on February 19th at West End High School in Nashville. The meeting was open to the public. Dr. William F. Orr led the panel discussion. "How Can the Minister and the Psychiatrist Work Together to Promote a Better Emotional Climate for the Individual, the Family and the Community?" was the subject of the discussion. Dr. J. J. Baker, Commissioner of the Department of Mental Health, State of Tennessee, participated in the discussion.

### **Chattanooga Area Heart Association**

The Chattanooga Area Heart Association held a symposium on cardiac diseases on January 29th. Dr. Fay B. Murphey was the Symposium Committee chairman. The guest speakers were: Dr. Richard Bing, professor of medicine, Washington University, St. Louis; Dr. Gerald H. Whipple, associate in medicine, Boston University School of Medicine, and physician-in-charge of the electrocardiography at the Massachusetts Memorial Hospital; and Dr. Dwight E. Harken, clinical professor of surgery, Harvard University Medical School. Dr. Bing's subject was, "Cardiac Metabolism." Dr. Whipple discussed, "The Recognition and Significance of Easily Overlooked Arrhythmias." Dr. Harken addressed the banquet at the Chattanooga Golf and Country Club; his subject was "Recent Advancement in Cardiac Surgery."

### **East Tennessee Heart Association**

A medical symposium of interest to general practitioners and heart specialists was presented at the Farragut Hotel, Knoxville, on January 22nd. Dr. Bruce R. McCampbell, Knoxville, was chairman of the program planning committee. Guest speakers were Dr. H. William Scott, Jr., surgeon-in-chief, Vanderbilt University Hospital, Nashville; Dr. James W. Culbertson, professor of medicine, University of Tennessee College of Medicine, Memphis; Dr. Dale Groom, Department of Internal Medicine, Medical College of South Carolina, Charleston.

### **University of Tennessee College of Medicine**

Dr. Charles Hunter Heacock, head of the Department of Radiology since 1937, has resigned as head of the department, but will



continue as professor of radiology. Dr. David S. Carroll, professor of radiology, will become head of the department.

★

The University of Tennessee Medical Units conducted a postgraduate course in Medical Technology on January 23-24. The program was presented to aid the technologists in their efforts to meet the rapidly changing demands being made upon the laboratory.

★

The City of Memphis Hospitals and the College of Medicine have established a clinical investigation unit to provide better medical care for patients in selected areas. The unit consists of nine private hospital beds and two wards of four beds each, a special laboratory, diet kitchen, utility and medicine room, and a nursing station. The unit is housed in a wing of the John Gaston Hospital adjacent to the University's Institute of Clinical Investigation.

★

Dr. Frank L. Roberts, associate dean, will go to Iran for two years as a consultant in medical education at the University of Shiraz, an English-using university in southern Iran under auspices of the International Cooperative Administration.

★

Fourteen members of the staff have been promoted and a Memphis physician has been appointed, Dr. M. K. Callison, dean, has announced. In the Department of Orthopedic Surgery: from assistant professor to associate professor, Drs. Alvin J. Ingram, Marcus Stewart and T. L. Waring; from instructor to assistant professor, Drs. R. Beverly Ray and Moore Moore, Jr.; from assistant to instructor, Drs. Rocco A. Calandruccio, A. H. Crenshaw, William T. Howard, and Lee Milford, Jr.; from assistant to instructor in the Department of Urology were Drs. Fontaine Moore, Hubert K. Turley and Howell D. Woodson; from assistant to instructor in the Division of Obstetrics and Gynecology were Drs. Betty Schettler and Hal P. James, and in the Department of Medicine Dr. Bruce Sutton, of Kennedy Veterans Hospital, has been appointed instructor.

Dr. James Spencer Speed, a member of the staff since 1926, and head of the Department of Orthopedic Surgery since 1941, has resigned his administrative duties but will continue as professor in the department. Dr. Harold B. Boyd was advanced from associate professor to professor, and will head the Department.

★

Dr. Ralph Tanz has been awarded a \$17,122 grant for a study of "Steroidal Cardiotonic Structure-Activity Relationships." The grant was awarded for a three-year period by the National Heart Institute of the U. S. Public Health Service.

★

Dr. Robert A. Utterback, associate professor of neurology, at the State University of Iowa since 1952, will join the staff as professor of neurology and head of the Section on Neurology in the Department of Internal Medicine. Dr. Nicholas Gotten will continue as professor of neurology, carrying responsibilities in both the undergraduate and graduate training programs.

★

The Memphis Heart Association has made a new research grant of \$2,167 to Dr. James Culbertson, to be used to purchase additional equipment for a cardiopulmonary laboratory. A \$3,000 grant was made last March.

### **Vanderbilt University School of Medicine**

Dr. James Barrett Brown, plastic surgeon, delivered the seventh annual Barney Brooks Memorial Lecture at Vanderbilt University School of Medicine on January 23rd. Dr. Brown, professor of clinical surgery, Washington University School of Medicine in St. Louis, spoke on "The Management of Cancer of the Face, Mouth, Jaws and Neck."

★

Dr. John Hoskins Foster, Nashville, has been awarded a \$20,000 Kemper foundation research scholarship for studies on hepatic cirrhosis and arterial replacement. The study will be on the production and treatment of hepatic cirrhosis, first seeking a method for experimental production of cirrhosis of the liver, at the same time studying arterial replacement.

## Northwest Tennessee Academy of Medicine

The Society met at the Dyersburg Country Club on January 27th. The scientific program was presented by Dr. Jas. Callaway and Dr. Walter L. Diveley, both of Nashville. The subject discussed was "Chronic Pulmonary Disease." It was determined that the February meeting would be held at Reelfoot Lake with the Lake County doctors as hosts of the meeting.

### PERSONAL NEWS

**Dr. Phillip H. Livingston**, Chattanooga, recently addressed the Rotary Club. His subject was "Problems of Modern Cardiac Research and the Accomplishments."

**Dr. Vernon Knight**, Nashville, spoke on "Antibiotics" at a public lecture on February 11th at Vanderbilt University.

**Dr. William G. Stephenson**, Chattanooga, has assumed the presidency of the Mid-South Post-graduate Medical Assembly. **Dr. David E. Stewart**, Brownsville, was elected a vice-president.

**Dr. Glen C. Shults**, Newport, addressed the Newport Rotary Club, discussing the human heart and some diseases which afflict the heart.

**Dr. Walter E. David** was elected president of the Lauderdale County Medical Society. **Dr. Parks Walker** was named vice-president, and **Dr. C. R. Webb**, secretary. All are from Ripley.

**Dr. Ralph O. Ryehener**, Memphis, recently addressed the Rotary Club on the subject, "The New Era of Aging."

**Dr. Francis Murphy**, Memphis, recently addressed the West Tennessee Chapter of the American Physical Therapy Association.

**Dr. C. D. Hawkes**, Memphis, has been elected president of the Southern Neurosurgical Society.

**Dr. Robert L. Banner**, Kingsport, was a guest speaker of the Tennessee Licensed Practical Nurses Association. His subject was, "Common Problems in Children's Surgery."

**Dr. J. W. Oursler**, Humboldt, has been named Humboldt's outstanding senior citizen for 1959.

**Dr. Hugh Smith**, Memphis, has been named President-elect of the American Academy of Orthopedic Surgeons.

**Dr. Fred C. McCall**, Bristol, has been elected chief of the medical staff at Bristol Memorial Hospital. Other new officers include: **Dr. Talmadge Buchanan**, vice chief of staff; **Dr. Frank Sutterlin**, chief of surgery; **Dr. Russell Frankhouser**, secretary-treasurer; **Dr. Joe Mitchell**, chief of obstetrics and pediatrics; and **Dr. Fred Vance, Jr.**, chief of medicine.

**Dr. Laurence Grossman**, Nashville, succeeds **Dr.**

**James Callaway** as chief of service of internal medicine at St. Thomas Hospital. **Dr. Geo. W. Holcomb, Jr.**, Nashville, succeeds **Dr. William R. Cate, Jr.**, as head of the surgical service, and **Dr. D. Scott Bayer**, Nashville, succeeds **Dr. Roy W. Parker** as chief of service of obstetrics and gynecology. **Dr. Luther A. Beazley**, Nashville, remains head of the pediatrics service.

**Dr. Robert F. Lash**, Knoxville, has been elected "outstanding young man of the year." The election was by the Knoxville Optimist Club.

**Dr. Carl Hartung**, Chattanooga, recently appeared on a Chattanooga Television Program discussing the topic: "What Can We Do About the Aging Heart?"

**Dr. Frank London**, Knoxville, recently addressed the Civitan Club.

**Dr. Moore Moore, Jr.**, Memphis, has been elected president of the medical staff at Methodist Hospital. He succeeds **Dr. J. Cash King**. Other officers are **Dr. Charles L. Clarke**, vice-president and **Dr. Joseph A. Rothschild**, secretary.

**Dr. R. W. Billington**, Nashville, was recently honored by the Nashville Academy of Medicine for fifty years or more in the practice of medicine.

**Dr. R. B. Turnbull**, Memphis, recently addressed the Hardeman County Tuberculosis Association.

**Dr. A. B. Qualls**, Livingston, is the 1959 campaign chairman in Tennessee for the National Foundation.

**Dr. Howard Vesser**, Luttrell, announces the opening of his office for the practice of medicine.

"Heart Trouble" was the subject discussed recently at the Exchange Club meeting in Knoxville by **Dr. E. Converse Pierce, II**.

**Dr. Robert H. Elder**, Cedar Hill, has been elected president of the Andrew Jackson Chapter of the Tennessee Academy of General Practice.

**Dr. Addison B. Scoville, Jr.**, Nashville, has been named chairman of the Board of Directors of the Nashville Academy of Medicine.

**Dr. Wesley H. Stoneburner**, Chattanooga, spoke on the subject, "One-Day Virus" over a Chattanooga TV Station.

**Dr. Elizabeth Lodge**, Union City, has accepted the post of director of the Obion and Lake Counties Health Department.

The Civitan Club of Memphis has chosen **Dr. L. M. Graves**, as Memphis' "Outstanding Citizen of 1958."

**Dr. Wm. A. Garrott**, Cleveland, was the guest speaker at a recent meeting of the Hamilton County Woman's Medical Auxiliary. His subject, "Current State and National Medical Legislation."

**Dr. Sheldon Domm**, Knoxville, recently addressed the District 17, Tennessee Nurses' Association at Crossville.

**Dr. W. M. Dedman**, Gallatin, has been named president of the Sumner County Medical Society. **Dr. James Robert Troutt** was named vice-president, and **Dr. Vincent Small**, secretary-treasurer.

**Dr. A. M. Patterson**, Chattanooga, recently discussed the subject, "The Problem of Terminal Illness" at the meeting of physicians and pastors at the First Methodist Church.



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**Prematurity** (Birth weight: 2 pounds, 4 ounces) —"Gradual improvement in appetite and capacity for formula. . . . Excellent progress and weight gain for a very immature infant."

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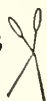


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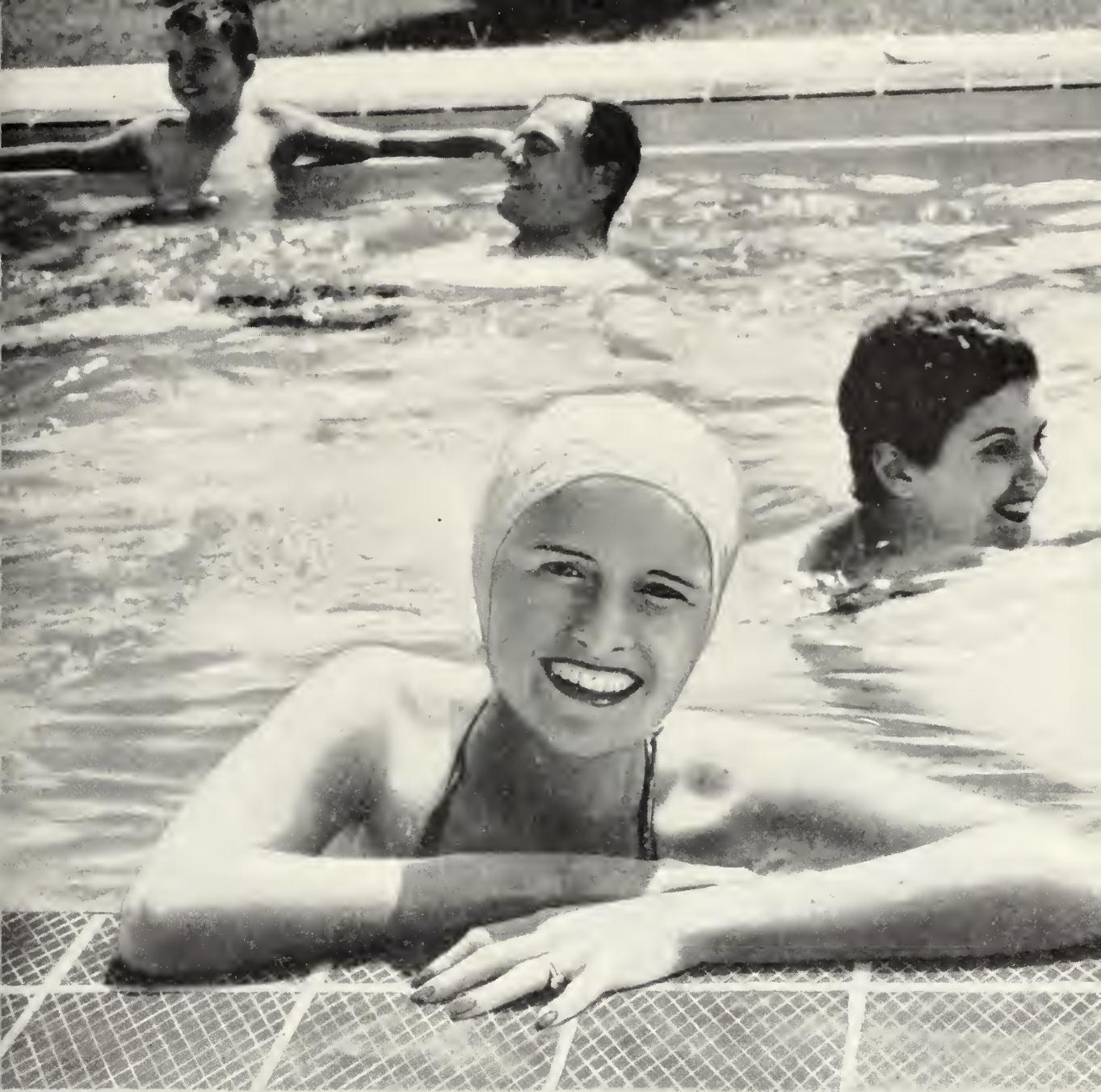
Xylocaine HCl solution, the versatile anesthetic for general office surgery, relieves pain promptly and effectively with adequate duration of anesthesia. It is safe and predictable. Local tissue reactions and systemic side effects are rare. Supplied in 20 cc. and 50 cc. vials; 0.5%, 1% and 2% without epinephrine and with epinephrine 1:100,000; also in 2 cc. ampules; 2% without epinephrine and with epinephrine 1:100,000.

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## Of course, women like “Premarin”<sup>®</sup>

**T**HERAPY for the menopause syndrome should relieve not only the psychic instability attendant the condition, but the vasomotor instability of estrogen decline as well. Though they would have a hard time explaining it in such medical terms, this is the reason women like “Premarin.”

The patient isn't alone in her de-

votion to this natural estrogen. Doctors, husbands, and family all like what it does for the patient, the wife, and the homemaker.

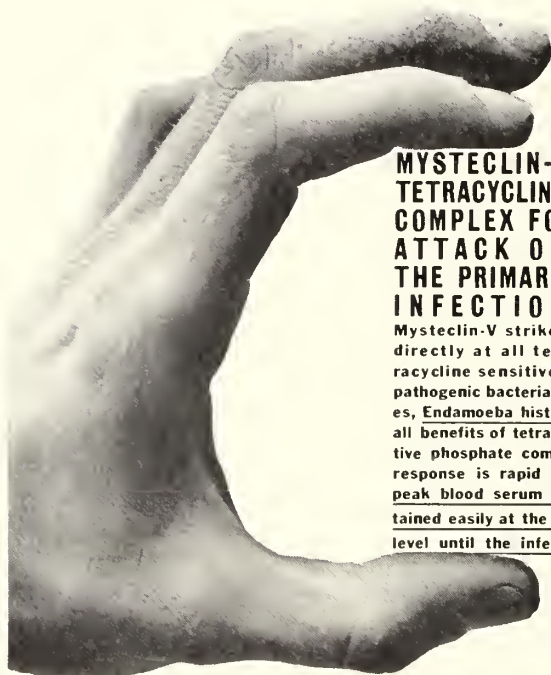
When, because of the menopause, the psyche needs nursing—“Premarin” nurses. When hot flushes need suppressing, “Premarin” suppresses. In short, when you want to treat the

whole menopause, (and how else is it to be treated?), let your choice be “Premarin,” a complete natural estrogen complex.

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more than tetracycline alone



**MYSTECLIN-V CONTAINS  
TETRACYCLINE PHOSPHATE  
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Mysteclin-V strikes directly at all tetracycline sensitive organisms — most pathogenic bacteria, certain large viruses, *Endamoeba histolytica*. It provides all benefits of tetracycline in the effective phosphate complex form.<sup>1</sup> Patient response is rapid because initial high peak blood serum levels may be maintained easily at the antibacterial attack level until the infection is conquered.

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Mysteclin-V protects patients against antibiotic induced intestinal moniliasis and its complications, including vaginal and anogenital moniliasis. This protection is provided by Mycostatin, the antifungal antibiotic, with specific action against *Candida* (*Monilia*) *albicans*.<sup>2</sup>

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**Capsules** (250 mg./250,000 u), bottles of 16 and 100.  
**Half-strength Capsules** (125 mg./125,000 u), bottles of 16 and 100.  
**Suspension** (125 mg./125,000 u per 5 cc.), 2 oz. bottles.  
**Pediatric Drops** (100 mg./100,000 u per cc.), 10 cc. dropper bottles.

**References:** 1. Crunk, G. A.; Naumann, D. E., and Casson, K.: *Antibiotics Annual 1957-1958*, New York, Medical Encyclopedia Inc., 1958, p. 397. •  
2. Newcomer, V. D.; Wright, E. T., and Sternberg, T. H.: *Antibiotics Annual 1954-1955*, New York, Medical Encyclopedia Inc., 1955, p. 686.

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# The Story of Kent

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a cigarette with less tars and nicotine  
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Ordinary filter fibers are so large that they create spaces through which the small semi-solid smoke particle can easily pass. However, in the superior Kent filter, the fibers are mechanically manipulated in such a manner as to create extremely tortuous passageways for the

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Thus, Lorillard research created a filter of ideal purity, with extraordinary ability to eliminate smoke particles...and at the same time, a cigarette of such fine taste that during the past twelve months more smokers changed to Kent than to any other cigarette in America.

*Of all leading filter cigarettes*

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Rautensin provides a smooth, gradual and sustained reduction of blood pressure without sudden rebounds or abrupt declines.<sup>1</sup> Rautensin's tranquilizing properties calm the tense and anxious hypertensive without impairing alertness, without producing excessive lethargy or drowsiness.

The risk of Rauwolfia-induced depression is markedly reduced since the alseroxylon fraction alone is used.<sup>2</sup> Even on long-term administration side actions "...are either completely absent or so mild as to be inconsequential."<sup>3</sup>

## **Rautensin®**

Each tablet contains 2 mg. of the purified alseroxylon complex of Rauwolfia serpentina

1. Wright, W. T., Jr.; Pokorny, C., and Foster, T. L.: Kansas M. Soc. 57:410, 1956. 2. Gilchrist, A. R.: Brit. M. J. 2:1011 (Nov. 3), 1956. 3. Terman, L. A.: Illinois M. J. 3:67, 1957.

## ANNOUNCEMENTS

### Hale-McMillan Lecture

The twelfth annual Hale-McMillan Lecture will be given at 8:00 p.m. on April 30, in the Public Health Lecture Hall of Meharry Medical College in Nashville. The subject will be, "Sarcomas of the Soft Somatic Tissues." The lecturer will be Dr. George T. Pack, of New York, Attending Surgeon, Memorial Cancer Center, Attending Surgeon, Pack Medical Group and Associate Professor of Clinical Surgery, Cornell University School of Medicine.

### American College of Chest Physicians

The College will hold its Silver Anniversary meeting at the Ambassador Hotel, Atlantic City, June 3-7. The scientific program will include prominent speakers on all aspects of heart and lung diseases. There will be a number of symposia, round table luncheon discussions, postgraduate seminars, and motion pictures.

Examinations for Fellowship in the College will be held on June 4th. More than 200 Fellows are expected to receive their certificates. The President's Banquet will take place on June 6.

### Third Tennessee Conference on Handicapped Children

The meeting will be held at the Andrew Johnson Hotel, Knoxville, Tenn., on April 3 and 4. Following a morning program of papers, the afternoon session will consist of panel discussions as follow: "Teacher-Physician-Parent Relationships and the Handicapped"; "The Physically Handicapped Child and Education"; "The Intellectually Handicapped Child and Education"; and "The Emotionally Handicapped Child and Education."

The banquet speaker is Dr. Henry Work, of the University of California at Los Angeles, who will discuss "The Handicapped Child in His First Years at School." The Saturday morning session will summarize the panel discussions of Friday.

### American Heart Association

The 1959 Annual Meeting and Scientific Sessions of the American Heart Association will be held October 23-27 in Philadelphia. The Scientific Sessions are scheduled for October 23-25 at the Trade and Convention Center. The Annual Meeting of the National Assembly, delegate body representing all program interests and geographical areas of the Association, will be held in the Hotel Bellevue Stratford, October 26-27.

A thoroughly revised and expanded edition of the Heart Association's booklet "Diagnosis of Congenital Cardiac Defects in General Practice," by Dr. Regina Gluck, is now available to physicians free of charge through the Tennessee Heart Associations and its chapters.

Designed primarily for general practitioners and pediatricians, the booklet is intended to clarify the function of the family physician in diagnosing and referring patients with congenital cardiac defects. It describes common congenital cardiac defects and presents briefly the physiology and clinical findings and the indications for surgery in defects that may be operable.

### Postgraduate Symposium on Rheumatic Fever and Rheumatic Heart Disease Vanderbilt University, School of Medicine

The Department of Preventive Medicine and Public Health at Vanderbilt University School of Medicine and the Middle Tennessee Heart Association will sponsor jointly a Postgraduate Symposium on Thursday, April 23, 1959, beginning at 9:15 a.m. The epidemiologic, clinical and preventive aspects of rheumatic fever and rheumatic heart disease will be discussed. Both the medical and surgical management of rheumatic heart disease will be considered. The course is approved for 6 hours of category I credit by the American Academy of General Practice. There will be no registration fee for the symposium. Luncheon will be served at minimal cost. For further information address the Department of Postgraduate Instruction, Vanderbilt University, School of Medicine.



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## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville 5, Tennessee.*

### Locations Wanted

A 37 year old married physician, Church of Christ. Graduate of University of Tennessee. Priority IV. Desires general practice in community over 5,000. Available immediately.

LW-291

A 31 year old married physician, Protestant. Graduate of University of Tennessee. Classification V-A. Desires group or associate practice in general surgery. Now finishing fourth year surgical residency. Available July, 1959.

LW-318

A 37 year old married physician, Protestant, Graduate of University of Nebraska. Desires general practice in small eastern Tennessee community of around 5,000 population. Available July 1, 1959.

LW-321

A 37 year old married physician, Greek Orthodox. Graduate University of Salonkia, Greece. Desires clinical or assistant practice in Pediatrics. Has 2 years pediatrics residency. Available July, 1959.

LW-322

A 29 year old married physician, Methodist. Graduate Emory University. Desires partnership or clinical practice in Pediatrics. Has 2 years pediatrics residency. Available July, 1959.

LW-323

A 35 year old married physician, Methodist. Graduate Washington University, St. Louis. Desires associate Ob-Gyn practice in large community. Has 4 years Ob-Gyn residency. Available July, 1959.

LW-324

A 28 year old married physician, Protestant. Graduate University of Arkansas. On Active Reserve. Desires general practice in West Tennessee community of 10,000-20,000. Available September, 1959.

LW-325

A 35 year old married physician, Methodist. Graduate University of Alabama. Has 2 years general surgery residency. Desires clinical or associate practice in middle or east Tennessee community of 5,000 to 25,000. Available July, 1959.

LW-326

A 23 year old married physician, Protestant. Graduate University of Tennessee. Desires general practice in community of 2,000-5,000 in east Tennessee. Available July, 1959.

LW-327

A 26 year old married physician, Presbyterian. Graduate of University of Tennessee. Priority 4-A. Desires general practice in small east or middle Tennessee community. Available July, 1959.

LW-328

## Physicians Wanted

Community in mid-central Tennessee needs physician to replace present one who is leaving to enter group practice. New clinic, equipped and available at low rent. Good location. PW-89

Large clinic in northwestern Tennessee has opening for Pediatrician with minimum of 2 years residency and 1 year rotating internship. Excellent opportunity in established location. PW-91

Community of 1,200 in southern Tennessee desires physician to replace aging doctor. One other physician in community. Office space and some equipment available. PW-96

Physician in middle Tennessee community of 3,000 offers excellent salary to general practitioner with view toward association. All equipment and office space furnished. Community has hospital. Age 25-35. PW-108

Community of 20,000 in central Tennessee desires physician specializing in EENT and Pediatrics. Community has large hospital and need for physician is great. PW-112

Physician in large west Tennessee community retiring. Wishes to find replacement. Either Ophthalmology or Otolaryngology-ophthalmology. Office space and equipment available. Requires 2 years internship. PW-113

Northeast Tennessee community of 20,000 has great need for Otolaryngologist. Community has 71 bed hospital which will supply equipment for in-patient use. PW-114

Training in Internal Medicine to satisfy Board requirements required of physician for excellent opportunity in Middle Tennessee area with new hospital. County of 25,000 with only 7 other physicians. Office building being completed. PW-115

Middle Tennessee community with new Hill-Burton Hospital and new office facilities built by practicing physician, desires physician with training to satisfy board requirements in Ob-Gyn. Under 40 years of age. PW-117

Physician in large southern Tennessee community desires associate eligible for Board certification in Internal Medicine. Desires sub-specialty in Cardiology. All equipment and office facilities provided. PW-118

Small central Tennessee community desires general practitioner. No other physician. Community will discuss possibilities of building clinic for physician's use. PW-120

Medical clinic in Middle Tennessee desires physician 55-60 to handle emergency room in evenings. Excellent salary. Position ideal for physician retired but desiring some light practice. PW-121

Open heart surgery has been made feasible by the pump oxygenator. The cases described here provide examples of what can be accomplished in the field of cardiac surgery with such modern technics.

Direct Surgical Repair of Lesions of the Aortic Valve and Ascending Aorta With Extracorporeal Circulation\*

JESSE E. ADAMS, M.D., and H. WILLIAM SCOTT, JR., M.D., Nashville, Tenn.

Disease of the aortic valve, whether congenital or acquired, is an important cause of morbidity and mortality. The association of sudden death with aortic stenosis is well documented in clinical experience. In the last 7 or 8 years a number of ingenious techniques have been devised for the surgical relief of aortic valvular lesions. Digital or instrumental dilatation of acquired valvular stenosis by either transaortic or transventricular routes has been used in many patients with varying degrees of success.<sup>1,2,3</sup> Hufnagel's prosthetic valve implanted into the descending aorta has been helpful in the management of severe aortic insufficiency.<sup>4,5</sup> More recently hypothermia with temporary interruption of the circulation has been successfully used for rapid division of the fused commissures in both congenital and acquired types of aortic stenosis.<sup>6,7</sup>

The limitations of these methods, however, have been obvious from the beginning. They have either been blind, indirect or rigidly limited as regards the time available for completion of definitive valvular surgery. Optimal conditions for surgical repair of lesions in an area as vital as the aortic valve should permit unhurried, precise and careful technical manipulations under direct

vision. Proper use of currently available techniques of extracorporeal circulation can provide such conditions. Initial experience with direct repair of a variety of lesions (Table 1) of the ascending aorta and aortic valve by means of an efficient heart-lung apparatus has prompted this report.

Table 1  
LESIONS OF ASCENDING AORTA AND AORTIC VALVE  
IN 13 PATIENTS

	Lesions	Successful Repair
Aortic stenosis		
Congenital		
Valvular	2	2
Subvalvular	2	1
Acquired	4	3
Aortic insufficiency		
Ruptured cusp	2	2
Dilated annulus	1	0
Aneurysm of ascending aorta	3	2
Ruptured aneurysm of sinus of Valsalva	1	1
Aorticopulmonary fistula	1	1
Aortico-atrial fistula	1	1
Total	17	13

Technique of Application of Heart-Lung Apparatus to the Surgical Repair of Lesions of the Ascending Aorta and Aortic Valve

Anesthesia is induced with cyclopropane and after tracheal intubation light anesthesia is maintained throughout the remainder of the procedure with nitrous oxide, oxygen and succinylcholine chloride (Anectine). Preparations are made for continuous recording of EKG., EEG., arterial and venous pressures, and temperature. The patient is placed in a supine position and

\*From the Department of Surgery, Vanderbilt University School of Medicine and the Surgical Service, Vanderbilt University Hospital, Nashville, Tenn.

This work was supported in part by grants from the John R. Hartford Fund and the Middle Tennessee Heart Association.

after preparation and draping the chest is entered anteriorly in the fourth intercostal space through a curved submammary incision extending from the right anterior axillary line across the sternum to the left anterior axillary line. A catheter is inserted into each hemithorax and attached to continuous suction to facilitate measurement of blood loss during the procedure. As an alternative to the bilateral thoracotomy incision, a median sternotomy may be used in certain selected cases and provides excellent exposure.

The thoracic viscera are inspected with particular care to exclude anomalies of pulmonary venous drainage, aberrant left vena cava, and patent ductus arteriosus. The pericardium is then opened widely over the base of the heart and systematic examination of the heart and great vessels is made. Pressure tracings are recorded from the right atrium, pulmonary artery and the ventricles. The ascending aorta is then dissected free from the adjacent pulmonary artery and a small purse-string suture of 5-0 arterial silk is placed near the base of the aorta on its anterior aspect. Another purse-string suture of 2-0 silk is placed at the base of the right atrial appendage and a similar suture is placed at the base of the left atrial appendage.

Heparin in the amount of 3 mg./kg. body weight is given intravenously. The right femoral artery is employed for the return of arterial blood to the patient. A thin-walled, stainless steel cannula of large caliber is inserted into this artery via transverse arteriotomy and connected to the arterial line of the pump-oxygenator, which has previously been primed with compatible heparinized blood. After digital exploration of the right atrium through its appendage, the vena cavae are cannulated to provide for return of venous blood to the pump-oxygenator. (If no atrial defect or other form of left to right shunt is present, a single, large caliber, flanged cannula inserted into the right atrium provides satisfactory venous return.) Perfusion is started and flows are adjusted to maintain circulatory equilibrium as evidenced by EEG. and arterial pressure. This usually requires flows in the range of 2 to 2.5 liters/sq. meter of body surface per minute.<sup>8</sup>

The previously mobilized ascending thoracic aorta is cross-clamped and cardiac asystole is induced by the rapid injection of a solution of 2.5% potassium citrate in saline into the proximal aortic lumen. Decompression of bronchial venous return is provided by an accessory catheter inserted into the left atrium. The aorta is then opened by a longitudinal incision along its anterior aspect. This provides excellent vision of the aortic valve and the adjacent areas which permits repair of existing defects in a careful and unhurried manner. After closing the incision in the aorta with a continuous arterial suture and evacuation of any residual air, the occluding clamp is removed from the distal ascending aorta to permit coronary perfusion and resumption of cardiac activity. After satisfactory rhythm has been established the venous line to the pump-oxygenator is gradually occluded, the work load of the heart gradually increased and extracorporeal circulation is discontinued. Final assessment of the function of the repaired valve or defect is made by measurements of pressures in the right atrium, pulmonary artery and ventricles. Any major deficit in blood volume is corrected before removal of the femoral arterial cannula.

A slow drip of polybrene sulfate\* is started to neutralize the heparin effect while closure of the pericardium and thoracotomy wound is carried out in the usual manner.

### Cases

*Case 1.* L. H. (VUH. 252978.) This 5 year old white girl had demonstrated intermittent episodes of cyanosis until the age of two. Cardiac catheterization, performed in January 1956, revealed a left to right shunt with equal aortic and pulmonary artery pressures, but without evidence of peripheral arterial oxygen unsaturation. Radiologic examination indicated pulmonary hypervascularity and cardiac enlargement involving primarily the left and right ventricles. Physical examination revealed a B.P. of 94/70 with a regular heart rate. A grade III blowing systolic murmur, present over the entire precordium, was loudest at the third left intercostal space. No diastolic murmur was audible, but a systolic thrill was present over the base.

On June 13, 1956, under hypothermia, a patent ductus arteriosus was divided with immediate re-

\*Supplied by Abbott Laboratories, North Chicago, Illinois.



duction of the pulmonary arterial pressure. The vigorous systolic murmur persisted at the base of the aorta, however, suggesting a *congenital aortic stenosis*.

The patient was re-admitted in May 1958 for correction of this lesion, at which time her B.P. was 90/70. A harsh grade III systolic murmur was present over the entire precordium but was most marked in the aortic area.

On May 20, 1958, the patient was operated upon with the aid of a pump-oxygenator (Fig. 1a). A valvular stenosis with a 3 mm. orifice was found and was readily relieved by precise division of the fused commissures which abolished the systolic gradient across the aortic valve. The patient bled from her aortic suture line postoperatively which required exploration on the 1st postoperative day. Her convalescence was otherwise uncomplicated and her blood pressure rose in the postoperative period to 110-120/80. Although a soft grade I systolic murmur persists over the base of the aorta, she is now asymptomatic, enjoys full activity, and her heart has returned to a normal size and configuration.

**Case 2.** P.M.C. (VUH. 274645). This 10 year old white school girl was admitted because of chest pain, exertional dyspnea, and recurrent ankle swelling of two years duration which had not been relieved by limitation of activity. Physical examination revealed a B.P. of 118/80 with a harsh grade IV systolic murmur which was loudest over the aortic area. Peripheral pulses were weak to absent in all extremities. X-ray examination of the chest revealed marked enlargement of the left ventricle. The preoperative diagnosis was *congenital aortic valvular stenosis*.

On January 7, 1959, operation was performed. A coarctation of the aorta, previously unsuspected, was found and resected with reconstruction by end-to-end anastomosis of the aorta. Using the pump-oxygenator the ascending aorta was then opened and a subvalvular stenotic diaphragm was

found below the normal aortic valve (Fig. 1b). This diaphragm was resected without difficulty.

The patient's postoperative course was uneventful and she was discharged on the 15th postoperative day. Since discharge she has been asymptomatic without limitation of activity.

**Case 3.** E.G.A. (VUH. 272402). This 8 year old white boy had been noted to have a heart murmur at the age of 5 months but remained asymptomatic until the age of 6 years when he noted dyspnea. In September 1957, a clinical evaluation indicated the diagnoses of *patent ductus arteriosus* and *congenital aortic stenosis*. Catheterization studies confirmed the left to right shunt at the ductus arteriosus level, and in October 1957, a patent ductus was divided. At that time a pressure gradient of 70-90 mm. Hg. was found to exist across the aortic valve.

Physical examination revealed a thin, white male child with a B.P. of 110/50. A harsh, grade IV systolic murmur was heard best to the left of the sternum. Electrocardiographic and radiologic examinations indicated left ventricular hypertrophy.

On May 29, 1958, an operation was performed under direct vision with the aid of a pump-oxygenator. A subvalvular stenotic diaphragm was discovered and resected without difficulty, which completely abolished the gradient across the aortic valve. For technical reasons, it was impossible to provide adequate decompression of bronchial venous return to the left atrium during the period of induced cardioplegia. Although the patient's immediate recovery from operation seemed satisfactory, he gradually developed progressive respiratory insufficiency and expired on the 2nd postoperative day. Postmortem examination revealed severe extravasation of blood in the pulmonary parenchyma.

**Case 4.** J.W.C. (VUH. 281908). This 36 year old white male painter entered with a 15 year history of progressive dyspnea which had resulted in severe limitation of activity for the previous 18 months. There was no past history of rheumatic fever.

Physical examination revealed a B.P. of 110/80. A grade II systolic murmur over the aortic area was transmitted into the neck. A grade III diastolic murmur with presystolic accentuation was also present at the apex. Cardiac catheterization performed elsewhere revealed a mean pulmonary artery pressure of 67 without evidence of left to right shunt. X-ray examination indicated left atrial enlargement. The preoperative diagnosis was *aortic stenosis* and *mitral stenosis*.

On June 26, 1958, an operation was performed employing a pump-oxygenator. The mitral valve was stenotic but could be readily opened to the annulus at both commissures. Aortic incision then revealed fusion of the commissures with only an 8 mm. orifice at the aortic valve (Fig. 1c). The commissural lines of fusion were divided to the annulus under direct vision which completely relieved the stenosis. Pathologic sections of a bi-

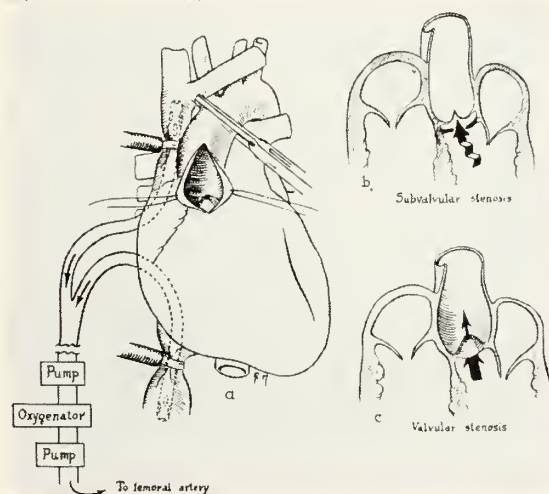


FIG. 1. Method of exposure of area of aortic valve with extracorporeal circulation. Insets (b and c) illustrate in frontal section the findings in congenital stenotic lesions.

opsy of the myocardium revealed active rheumatic myocarditis.

The patient's postoperative course was uneventful and he was discharged on the 14th postoperative day. Postoperatively X-ray studies have revealed a marked decrease in the cardiac size with complete alleviation of all symptoms. He has now returned to full activity without limitation.

**Case 5.** R.B. (VUH. 280045). This 43 year old white carpenter gave a 3 year history of progressive exertional dyspnea, orthopnea, and angina, which necessitated 8 to 9 nitroglycerin tablets per day for relief. One month prior to admission the patient had a bout of severe dyspnea with hemoptysis despite adequate digitalis. There was no past history of rheumatic fever.

Physical examination revealed a B.P. of 130/80 with a pulse rate of 100. The lungs were clear to percussion and auscultation. There was a harsh aortic systolic murmur of grade III intensity and also a mitral systolic and diastolic murmur. The liver was not palpable. X-ray films and fluoroscopy of the chest revealed cardiac enlargement involving primarily the left ventricle and the left auricle. In addition calcification was visible in the mitral and aortic valve areas. The EKG. revealed left ventricular hypertrophy and strain.

An operation was performed on June 3, 1958 using a pump-oxygenator. After relief of the mitral stenosis had been obtained, the aortic stenosis was relieved under direct vision by division of the fused commissures. The patient's postoperative course was uncomplicated and he was discharged considerably improved on June 14.

The patient has continued to have a faint apical diastolic murmur and a grade I-II aortic systolic murmur, but has been able to perform moderate exercise without dyspnea or angina. He has now returned to restricted activity as a carpenter.

**Case 6.** D.H.P. (VUH 283879). This 51 year old white, male, lathe operator entered Vanderbilt University Hospital in July 1958 because of "heart trouble." He had been asymptomatic until 2 years prior to admission when he developed exertional dyspnea and at which he had been told that he had a "leaky heart valve." Despite digitalis he developed paroxysmal nocturnal dyspnea, peripheral edema and angina on exertion. He had been unable to continue his work for the 7 months before admission.

The physical examination revealed a B.P. of 110/90 with a regular cardiac rate. A palpable thrill, with a harsh systolic murmur, was present in the aortic area. Peripheral pulses were weak but present in all extremities. The EKG. revealed a first degree heart block, and radiologic examination revealed calcification of the aortic valve. The patient was discharged on an intensive conservative regimen for subsequent admission for cardiac surgery.

On September 11, 1958, an aortic commissurotomy was performed under direct vision with the aid of a pump-oxygenator. The congenital bicuspid valve was heavily calcified but the stenosis was relieved without difficulty. A perfora-

tion of the posterior cusp was repaired by suturing a free graft of pericardium to the cusp (Fig. 2).

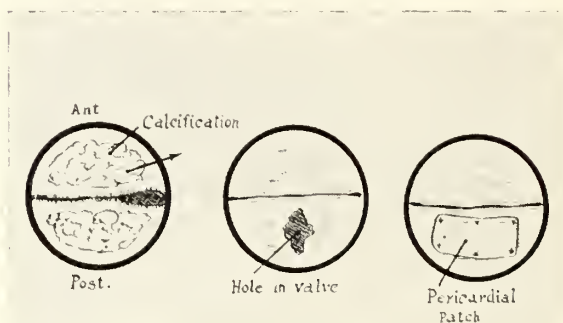


Fig. 2. Diagrammatic representation of aortic valve as viewed from above in Case 6. Defect in posterior cusp resulting from removal of calcareous mass was repaired with pericardial patch.

Preoperative and postoperative pressure determinations revealed that the gradient of pressure across the aortic valve had been lowered from 90 mm. to 20 mm. Hg.

The patient's postoperative course was complicated by thrombosis of his left femoral artery, for which a by-pass graft was subsequently inserted. The patient now demonstrates a grade II aortic systolic murmur without a diastolic component. His B.P. now averages 104/66; he states that his exertional dyspnea has improved considerably, but he has been unable to return to work because of pain in the left lower extremity and at the site of thoracotomy.

**Case 7.** C.L.F. (VUH. 281313). This 52 year old white male plant foreman gave a history of progressive exertional dyspnea of 4 years duration. Three months prior to admission his symptoms had become more severe, at which time his family physician noted a heart murmur for the first time. There was no history of rheumatic fever. Review of previous chest X-ray examinations showed progressive cardiomegaly.

Physical examination revealed a B.P. of 155/95. In the aortic area the first sound was obscured by a high pitched, harsh, systolic murmur which was transmitted into the neck. A thrill was palpable in the second right intercostal space. X-ray films of the chest revealed marked left ventricular enlargement, widening and tortuosity of the aorta, and calcification of the aortic valve. The EKG. indicated left ventricular hypertrophy and strain.

On May 15, 1958, the aortic stenosis was relieved under direct vision with the aid of a pump-oxygenator. The valve was heavily calcified and immobile. Because small portions of calcium were dislodged from the valve during the operative procedure, it was suspected this patient might experience embolic phenomenon in the postoperative period. The patient became comatose on the first postoperative day, after having previously been quite alert, and expired suddenly. It appeared clinically that his death was probably secondary to calcific emboli although postmortem examination failed to establish the cause of death.



**Case 8.** W.R. (VUH. 243840). This 21 year old white male office worker had been known to have a cardiac murmur since the age of 6 weeks. He had been essentially asymptomatic except for mild exertional dyspnea until 5 months prior to admission, when he noted substernal pain which was thought to represent a myocardial infarction although the diagnosis was not substantiated. There was no history of rheumatic fever.

Physical examination on admission revealed a B.P. of 120/90 and a harsh grade IV systolic murmur at the aortic area. Radiologic examination revealed dilatation of the ascending thoracic aorta and left ventricular hypertrophy. Preoperative diagnosis was *congenital aortic stenosis* with coronary insufficiency.

Operation was performed on January 16, 1958, utilizing a pump-oxygenator. An *aneurysm* of the ascending thoracic aorta was found with a defect of the intima of the posterior wall which was considered to represent an old partial dissection. There was a *congenital bicuspid aortic valve* with fusion of the left two-thirds of the commissure, resulting in stenosis of severe degree. The fusion of the commissure was easily relieved by careful sharp dissection. Subsequently, the ascending aorta was resected and a plastic prosthesis was inserted (Fig. 3). Cardiac arrest

postoperatively at which time a vein in the region of the right phrenic nerve was ligated.

He was discharged on the 14th postoperative day and has returned to full normal activity although digitalis therapy has been maintained.

**Case 9.** W.S. (VUH. 280594). This 74 year old colored man was admitted because of dyspnea and a pulsating mass of his right anterior chest wall. Physical examination revealed a 15 cm. pulsating mass in the upper anterior chest which appeared to have eroded the rib cage. X-ray examination revealed a massive *aneurysm* involving the entire length of the ascending thoracic aorta. The remainder of the thoracic aorta was diffusely widened. Shortly after admission the patient complained of chest pain and increased dyspnea which was associated with a rapid pulse rate.

An emergency thoracotomy was performed on April 23, 1958, with a pump-oxygenator available on a stand-by basis. The aneurysm was found to arise from the entire ascending thoracic aorta from such a wide base that it was felt unwise to attempt to clamp the base of the aneurysm. Accordingly, the pump-oxygenator was used so this area could be by-passed while the aneurysm was excised. Pathologic sections revealed the aneurysm to be on the basis of a syphilitic infection. The patient's postoperative course was complicated only by temporary oliguria which responded to therapy. Since discharge he has returned to his usual activities despite persistence of slight dyspnea.

**Case 10.** B.R.S. (VUH. 288559). This 29 year old white mechanic was admitted to Vanderbilt University Hospital because of intermittent pain in his chest of 5 days duration. There was no previous history of heart disease and he had, in fact, successfully passed a military physical examination 2 years previously. The precordial pain had occurred suddenly and was accompanied by dyspnea. On the day of admission he had lost consciousness with an attack of pain.

Physical examination revealed a thin white man with a B.P. of 120/20. Loud systolic and diastolic murmurs were present over the aortic valve area, and it was noted that his joints were hypermobile. Radiologic examination revealed aneurysmal dilatation of the ascending thoracic aorta. His preoperative diagnosis was Marfan's syndrome with aortic insufficiency and aneurysmal dilatation of the ascending thoracic aorta with probable impending rupture of the aneurysm.

On December 12, 1958, the patient was operated upon with the aid of a pump-oxygenator. Relief of the *aortic insufficiency* was obtained by resection of the noncoronary cusp of the valve with conversion to a bicuspid valve. The *aneurysm* of the aorta, which appeared very near rupture, was resected, with replacement by means of a vascular prosthesis (Fig. 4). Immediately postoperatively, pressure determinations indicated successful repair of the aortic regurgitation (Fig. 5) but while the chest was being closed, bleeding began from a laceration of the posterior left ventricular wall.

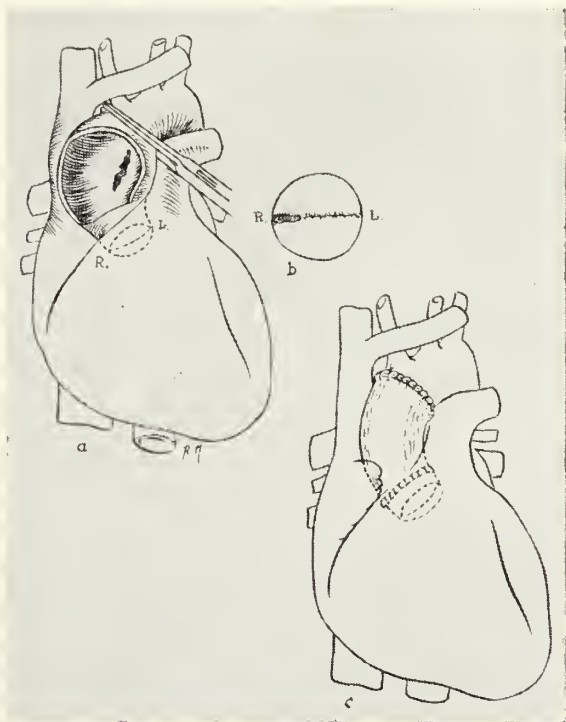


FIG. 3. Aortic stenosis with aneurysm of ascending aorta (Case 8). Repair by commissurotomy and prosthetic replacement of ascending aorta.

was maintained for 57 minutes and the pump-oxygenator was utilized for 73 minutes at an average flow rate of over 4000 cc./minute. The patient's postoperative course was complicated by bleeding which necessitated exploration 8 hours





FIG. 4. Aneurysm of ascending aorta with aortic insufficiency in patient with Marfan's syndrome (Case 10). Method of repair of insufficiency valve due to annular dilatation by conversion to bicuspid valve; prosthetic replacement of ascending aorta.

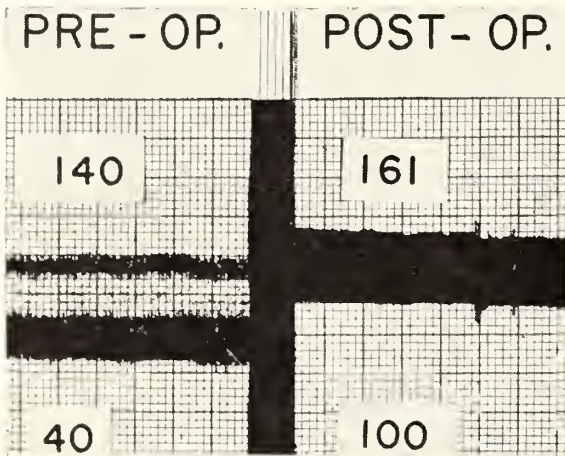


FIG. 5. Arterial pressure tracings at operation before and after repair of valve in Case 10.

All attempts to control this were unsuccessful and the patient expired shortly thereafter.

**Case 11.** P.A.F. (VUH. 229547). This 17 year old white girl had been found to have cardiomegaly at 4 months of age. Her childhood was characterized by frequent attacks of pneumonia, easy fatigability, and exertional dyspnea. The diagnosis of interventricular septal defect was made at the age of 13, and since that time she had had repeated attacks of subacute bacterial

endocarditis and probable pulmonary emboli. In 1954, she suddenly developed an aortic diastolic murmur associated with a wide pulse pressure.

The physical examination revealed a B.P. of 154/0 with a hyperactive precordium. A systolic thrill was maximal in the 2nd left intercostal space. Loud, systolic and diastolic murmurs were present in the 3rd left intercostal space. The preoperative diagnosis was *congenital interventricular septal defect*, with associated *ruptured aortic sinus of Valsalva* or *acquired ruptured aortic cusp*.

On July 15, 1958, an operation was performed with the aid of a pump-oxygenator. An interventricular septal defect measuring 2 cm. in diameter was found and closed primarily with interrupted silk sutures. The center of the cusp of the noncoronary sinus of Valsalva was also found to have a 6 to 8 mm. perforation which was easily closed with interrupted mattress sutures (Fig. 6). The patient's postoperative course was

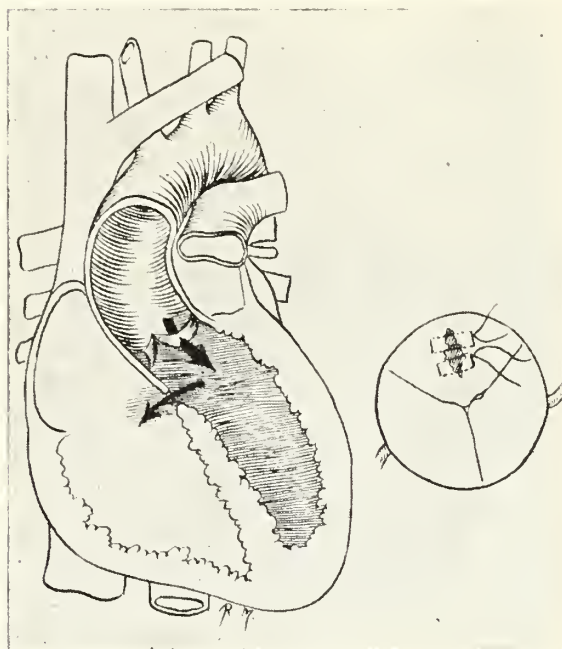


FIG. 6. Ruptured aortic cusp with interventricular septal defect (Case 11). Inset shows repair of defect in noncoronary cusp by direct suture.

uncomplicated and she was discharged improved.

The patient has continued to receive digitalis and has noted marked subjective improvement since discharge. She has been able to perform her household duties without dyspnea and has noted no nocturnal dyspnea or orthopnea.

**Case 12.** M.P. (VUH. 288195). This 30 year old white male engineer was told in childhood that he had "heart trouble." He was essentially asymptomatic, except for slight exertional dyspnea, until 28 years of age when he developed congestive failure necessitating hospitalization. The patient appeared clinically and by retrograde aortography to have a patent ductus arteriosus which was successfully divided and closed.

At the time of operation, however, a persistent thrill was discovered in the pulmonary artery

which suggested an associated aorticopulmonary fistula. For this reason he was admitted to Vanderbilt University Hospital in November, 1958. Physical examination revealed a B.P. of 170/50. A systolic thrill and a grade IV systolic murmur was present in the 3rd left intercostal space. A grade III diastolic murmur was also present in this area. Fluoroscopic examination revealed increased aortic pulsation with a marked "hilar dance."

On November 20, 1958 the patient was operated on with the aid of a pump-oxygenator. He was found to have a ruptured *aortic aneurysm of the sinus of Valsalva* extending from the right coronary sinus into the right ventricle, and also a high interventricular septal defect (Fig. 7). Both defects were closed without difficulty and his postoperative course was uneventful. He has now returned to full activity without limitation.

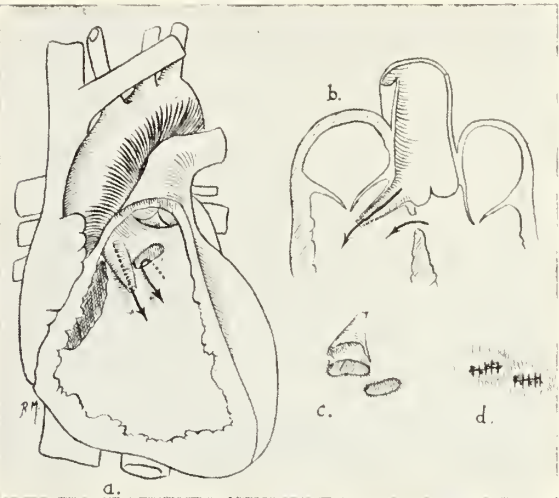


FIG. 7. Ruptured aneurysm of right coronary sinus of Valsalva of aortic valve extending into right ventricle associated with interventricular septal defect (Case 12). Insets show relationships; excision of aneurysmal sac and repair by direct suture.

*Case 13.* J.D.J. (VUH. 286697). This 46 year old colored laborer was admitted because of dyspnea, palpitation, weakness, and easy fatigability of several months duration. He had apparently been in excellent health until 5 months before admission when he was stabbed in the chest with a knife. He had been treated vigorously at another hospital with multiple transfusions and evacuation of a massive hemothorax. Two months later he developed dyspnea and edema and was found to have cardiac murmurs which had not previously been present. Cardiac catheterization was performed and revealed a left to right shunt at the level of the pulmonary artery.

Physical examination revealed a B.P. of 110/70. There was a continuous murmur over the entire chest which was maximal in the 2nd interspace just to the left of the sternal border. A grade II systolic murmur was present at the base. X-ray examination revealed marked enlargement of the

heart and by retrograde aortography there was prompt filling of the pulmonary artery.

On September 10, 1958, an operation was performed using a pump-oxygenator. A *traumatic fistula* extending from the aorta into the pulmonary artery was found and closed. A second fistula which extended from the aorta into the right atrium was also closed without difficulty (Fig. 8).

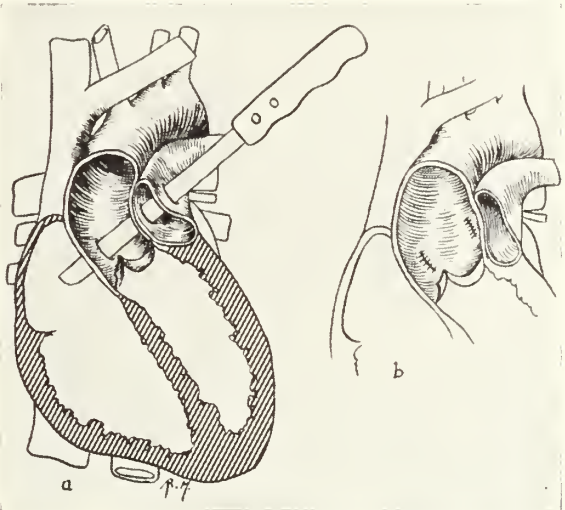


FIG. 8. (a) Artist's conception of original method of injury which produced aorticopulmonary and aortico-atrial fistulae (Case 13). (b) Transaortic repair by direct suture.

The patient's postoperative course was uneventful and he was transferred to a neighboring hospital for convalescent care. The patient is now asymptomatic with normal cardiac function and no murmurs and has returned to his previous occupation.

Comment

Tables 1 and 2 list in detail the 25 lesions

Table 2

	ASSOCIATED DEFECTS	
	Lesions	Successful Repair
Ventricular septal defect	2	2
Patent ductus arteriosus	3	3
Coarctation of aorta	1	1
Mitral stenosis	2	2
Total	8	8

encountered in the 13 patients of this group. Many of these lesions could not have been repaired without the aid of a pump-oxygenator to provide for unhurried surgery under direct vision. Some of these lesions, such as acquired aortic stenosis can be relieved by blind or instrumental techniques, but in our hands these indirect techniques have afforded limited improvement and have been accompanied by a high mortality rate. Although hypothermia permits



direct vision surgery of brief duration in the region of the aortic valve, the strict limitation of time provided by hypothermia alone obviates the possibility of successfully repairing the more complicated lesions.

Many of the less complicated intracardiac lesions, such as atrial septal defects and ventricular septal defects, can be corrected with the assistance of the pump-oxygenator while the heart continues to beat, but the technique of induced cardiac arrest in our opinion is essential for lesions involving the aortic valve. Coronary air embolism, previously considered to represent a major obstacle to successful open surgery of the proximal aorta, has not proven to be a clinical problem if all air is evacuated from the aorta prior to closure of the aortotomy. Although it has not been necessary to provide for perfusion of the coronary arteries in any of the cases reported above, it may be that for the more complicated lesions of this area, direct cannulation and perfusion of the coronary arteries during the period of arrest will prove to be of value in forthcoming cases when the duration of cardioplegia need be longer than thirty minutes.

In view of the severity and progressive nature of the symptoms exhibited by patients with aortic stenosis or regurgitation, due to disease or injuries of the valve cusps and fistulas leading from the proximal aorta, both congenital and acquired, these preliminary results would seem to justify the continuation and more extensive exploration

of direct surgical repair of such lesions with extra-corporeal circulation.

### Summary

A method of application of a technique of extracorporeal circulation to permit unhurried surgery under direct vision in the management of lesions of the aortic valve and ascending aorta is described. Initial experience with the method in 13 patients is described.

### References

1. Bailey, C. P., Redondo-Ramirez, H. P. and Larzelere, H. B.: Surgical Treatment of Aortic Stenosis, *J.A.M.A.* 150:1647, 1952.
2. Bailey, C. P., Bolton, H. E., Jamison, W. L. and Nichols, H. T.: Commissurotomy for Rheumatic Aortic Stenosis, *Circulation* 11:22, 1954.
3. Swann, W. K., Bradsher, J. T., Jr., and Rodriguez, A. J.: Intracardiac Surgery with the Aid of Artificial Operative Tunnels, *J. Thoracic Surg.* 28:266, 1954.
4. Hufnagel, C. A.: Aortic Plastic Valvular Prosthesis, *Bull. Georgetown Univ. Med. Center* 4:128, 1951.
5. Hufnagel, C. A. and Harvey, W. P.: The Surgical Correction of Aortic Regurgitation, *Bull. Georgetown Univ. Med. Center* 6:60, 1953.
6. Swan, H., Wilkinson, R. H. and Blount, S. G.: Visual Repair of Congenital Aortic Stenosis During Hypothermia, *J. Thoracic Surg.* 35:139, 1958.
7. Dye, W. S., Julian, O. C., Javid, H., Grove, W. J., Morehead, D. E. and Pree, O.: Aortic Commissurotomy under Direct Vision, *Ann. Surg.* 148:469, 1958.
8. Adams, J. E., Lance, E. M., Moore, B. F. and Scott, H. W., Jr.: An Autoclavable, Stainless Steel Modification of the Stationary Screen Oxygenator, *Surgical Forum* (In press).

### Fracture of the Intercondylar Eminence of the Tibia. Meyers, Marvin H. and McKeever, Francis M.: *J. Bone & Joint Surg.* 31-A: 209, 1959.

A series of 45 patients with fractures of the intercondylar eminence is presented; 35 in children and 10 in adults. The authors have classified these fractures into three types. Type I is the least severe and is characterized by the least displacement from its bed in the tibia. There is only slight elevation of its anterior margin. In Type II fractures, the displacement is greater and the anterior one-third to one-half of the avulsed fracture is elevated from its bony bed. In Type III fracture, there is complete avulsion of the fragment. Sometimes, there is actual rotation of the fragment. Types I and II fractures are treated by aspiration

if the hemarthrosis is tense, followed by application of a long-leg cast which is continued until there is roentgenographic evidence of healing of the fragment to its bed, usually requiring about twelve weeks. Type III fractures require open reduction and the authors simply replace the fragments into their bed and when necessary, place a single absorbable suture through the fragment and through the meniscus. Postoperatively, the extremity is held in a long-leg plaster cast until healing obtains. This method of handling these fractures seems entirely reasonable and with the results as presented, the procedure is to be preferred over the more elaborate operative procedures as performed in the past. (Abstracted by Thomas F. Parrish, M.D., Nashville.)



**Congenital hydrocephalus has always been a hopeless situation when viewed from the therapeutic viewpoint. Though many attempts have been made to treat the condition, results have been poor. Recently other methods of diverting the spinal fluid as described have been developed.**

# Modern Technics For Diverting Spinal Fluid Flow\*

GUY OWENS, M.D.†, Nashville, Tenn.

Early in his career Harvey Cushing<sup>1</sup> observed during an operation that drops of fluid appeared on the exposed choroid plexus. Despite the unsophisticated nature of this observation there still is no better evidence than this that the choroid plexus is the source of cerebrospinal fluid. As might be expected then, the cause of congenital (communicating) hydrocephalus has also remained for the most part obscure. There have been no essentially new ideas for the treatment of hydrocephalus. These methods historically have included: 1) diuresis; 2) phlebotomy; 3) intermittent or constant ventricular drainage; 4) hormone therapy; 5) dehydration; 6) pressure bandaging of the head; 7) resection of the choroid plexus; 8) ligation of the carotid arteries; 9) radiation of the choroid plexus; 10) constant ventricular drainage to the surface of the body, the subarachnoid and subdural spaces, the cerebral veins, the longitudinal sinus, the scalp and neck veins, the orbit, nasopharynx, paranasal air sinuses and mastoid; and 11) constant subarachnoid spinal drainage to the subcutaneous tissues, the peritoneum and retroperitoneal space, the bowel, bone-marrow and the urinary tract. The law of diminishing returns is well illustrated here. Such a large and varied number of approaches should certainly have been attended with great success. The reverse of course is true.

The cause of failure in the above procedures has been due to: (1) resultant meningitis; (2) obstruction to the flow at the distal

end of a prosthetic tube; (3) electrolyte imbalance due to continued loss of cerebrospinal fluid; (4) hydrostatic imbalance of cerebrospinal fluid within the central nervous system; and (5) interference with normal physiologic process in the remaining organs of the body.

During the past 18 months two methods for diverting the cerebrospinal fluid have become useful because of technical developments. One of these we have employed in 14 patients at Vanderbilt University Hospital. The other appears to be less practical. Both we hope will be regarded as "museum pieces" in a few years.

## Ventriculobiliary Shunt

Smith<sup>2</sup> introduced this method after the development of a suitable flutter valve device which successfully prevented the reflux of bile and was also resistant to the various chemicals with which it came in contact. The gallbladder was selected because it met in some degree the criteria for allowing the persistence of a shunt, namely: (1) it is a relatively sterile organ, in the absence of biliary obstruction; (2) ample opportunity is provided for resorption of electrolytes and water in the gallbladder and intestines; (3) hydrostatic pressure within the biliary system (normally 100 to 200 mm. water) would tend to maintain intracranial pressure at a suitable level; (4) the gallbladder is not an essential organ; and (5) bile is a lytic substance and prevents the formation of fibrous reaction and tissues which will either plug the distal end of the tube or form a fibrous cyst.

In the communicating hydrocephalus the shunt is made between the high lumbar subarachnoid space around the right flank into the peritoneal cavity with the valve held in

\*Presented at the Vanderbilt University Second Postgraduate Course in Pediatrics, March 17, 18 and 19, 1959.

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place in the gallbladder by purse string sutures. In the obstructive hydrocephalus direct shunts from the ventricles may be established, otherwise a Torkildson shunt followed by a spinal subarachnoid-biliary shunt can be made.

The above method has certain limitations. One or two major operative procedures are required. Quite often these infants are very ill, increasing the hazard of any type of procedure. Also, in the infant a gallbladder may be difficult to cannulate because of its relatively small size. And lastly, the possibility of an ascending infection is always a hazard, and if bile manages to pass by reflux into the subarachnoid space little is known of the sequelae from such a complication. For these reasons we have not employed this operation.

#### Ventriculo-auriculostomy

Use of the venous circulation as a drainage site for cerebrospinal fluid was first suggested by Gärtner<sup>3</sup> in 1895. Since then numerous attempts have been made to do just this. Payr<sup>4</sup>, in 1908, was the first to attempt a ventriculo-venous anastomosis by joining a ventricle with the superior longitudinal sinus, using an autogenous vein graft. Autogenous and homogenous artery and vein tissues have been employed since. In 1925, Cushing<sup>5</sup> commented on the unsuccessful use of a specially designed tube for such a shunt. Ingraham<sup>7</sup> and co-workers, in 1948, employed a polyethylene tube between the ventricular system and a dural sinus and superior vena cava. Reflux blood clotting in the tube eventually caused malfunction. In 1949, Nulsun and Spitz<sup>8</sup> reported on a two year successful shunt between ventricle and vein employing a ball valve device. Gupta<sup>9</sup>, in 1950, reported inconclusively his efforts at shunting cerebrospinal fluid into the external jugular vein. Finally, in 1957 Pudenz and associates<sup>10</sup> described a device now known as the Heyer valve, which could be placed in the right auricle via the internal jugular vein. It is this device which has been used in 14 patients at Vanderbilt University Hospital during the past 9 months.

Silicone rubber is used for the shunt because of its more desirable physical and chemical properties. The tube is divided into

two parts. The cardiac end has a silicone slit-and-core valve molded into its tip (Fig. 1). This is threaded into the right auricle

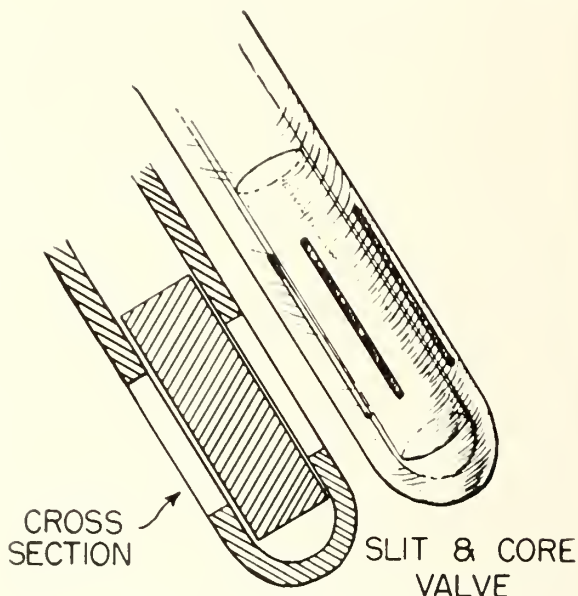


FIG. 1. Diagrammatic representation of the Heyer flutter valve device used in ventriculo-auriculostomy procedures.

via the internal jugular vein. The ventricular end is placed into a lateral ventricle through a posterior parietal burr hole. It is brought subcutaneously behind the ear into the neck where the two portions of the shunt are sized and joined with a small connector made of tetrafluoroethylene. The presence of the catheter within the auricle may be demonstrated by X-ray of the chest



FIG. 2. I.M. (2 month old colored boy) with myelomeningocele and hydrocephalus. Radiographic identification of intracardiac catheter position. Hypaque 50% contrast media).

during the injection of a small amount of contrast media introduced into the cardiac portion of the tube (Fig. 2 and 3).



FIG. 3. W.R. (14 year old white boy) required ventriculo-auricular shunting after failure of a Torkildson shunt. Patient had a cerebellar medullo-blastoma.

This procedure produces a minimal amount of trauma. It is uncomplicated by meningitis. Its chief disadvantage lies in the fact that a foreign body is chronically placed within the auricle. The swirl of blood in this chamber theoretically and experimentally reduces the hazard of clotting about its tip. The duration of such conditions is unknown however. It is a very simple procedure to remove the cardiac end of the catheter, clean the valve and reinsert it into the old tract. Four revisions have been required in our series to date. As a result it has been observed that despite the valve, reflux of blood may still cause nonfunction.

The experiences in this institution with this method of shunting cerebrospinal fluid are encouraging. The minimal trauma associated with the placement of the shunt has allowed us to insert the catheter and repair a myelomeningocele at the same operation in two instances (Fig. 4). One procedure was carried out on a 14 year old boy with obstructive hydrocephalus due to a medullo-



FIG. 4. I.M. (Same patient as in Fig. 2). Simultaneous repair of myelomeningocele and shunt procedure performed on this child. Note appearance of cranial vault when child is maintained in the upright position.

blastoma. Postoperative development of a cerebrospinal fluid fistula and failure of a Torkildson shunt to function required the employment of the Heyer valve. It will remain to be seen if widespread metastasis of this tumor can now occur.

### Conclusion

The employment of ventriculobiliary and ventriculo-auricular shunts for the treatment of hydrocephalus has been discussed. These methods have been made possible by the development of special plastic, and silicone coated rubber devices supplemented by the use of unique valve arrangements to prevent the reflux of bile and blood respectively. Each has defects which will not allow us to become complacent or satisfied. The goal should still be one of chemical or enzymatic relief of hydrocephalus.

### References

1. Cushing, H.: Studies on the Cerebrospinal Fluid. *J. Med. Res.* 31: 1, 1914.
2. Smith, G. W., Moretz, W. H. and Pritchard, W. L.: Ventriculo-biliary Shunt. A New Treatment for Hydrocephalus, "*Surgical Forum*," *Am. Coll. Surgeons*, 9: 701, 1959.
3. Gärtner: Cited by Kausch (4).
4. Kausch, W.: Die Behandlung des Hydracephalus der kleinen Kinder, *Arch. klin. Chir.* 87: 709, 1908.
5. Payr, E.: Drainage der Hirnventrikel mittelst frei transplantierten Blutgefäße; Bemerkungen über Hydracephalus, *Arch. Klin. Chir.* 87: 801, 1908.
6. Cushing, H.: Studies in Intracranial Physi-



ology and Surgery. The Third Circulation, London: Oxford University Press, XII, 146 pp. (see pp. 7-11), 1926.

7. Ingraham, F. D., Matson, D. D., Alexander, E., Jr., and Woods, R. P.: Studies in the treatment of Experimental Hydrocephalus, *J. Neuropath. & Exper. Neurol.* 7: 123, 1948.

8. Nulsun, F. E. and Spitz, E. B.: Treatment of Hydrocephalus by Direct Shunt From Ventricle to

Jugular Vein, *Surgical Forum, Am. Coll. Surgeons* 2: 399, 1949.

9. Gupta, S. M.: New Surgical Treatment for Idiopathic Hydrocephalus. Preliminary note, *Indian J. M. Sc.* 4: 85, 1950.

10. Pudenz, R. H. Russell, F. E., Hurd, A. H. and Sheldon, C. H.: Ventriculo-auriculostomy. A Technique for Shunting Cerebrospinal Fluid Into the Right Auricle, *J. Neurosurg.* 14: 171, 1957.

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**Recurrent Congenital Club-foot. The Role of the M. Tibialis Posterior in Etiology and Treatment. Fried Amon, J. Bone & Joint Surg. 41-A: 243, 1959.**

The author presents a series of 56 operations performed on 54 patients with recurrent club-foot deformities and 2 patients who had not had previous treatment but were subjected to the same operative procedure. In all patients, he found abnormal insertion of the tibialis posterior tendon, which tendon was found to be thickened and at the medial malleolus became a thick, fibrous mass inserting into fascia, ligaments and bones at the medial, dorsal and plantar aspects of the foot. This thick mass was dissected out, the ligamentous support between the talus and navicular, through the navicular and cuneiform, between the cuneiform and first metatarsal were divided and the tibialis posterior passed through the interosseous membrane and reinserted into the third cuneiform. Achilles tendon lengthening and posterior capsulotomy of the ankle was performed at the same time to correct the equinus deformity. The result, as shown by preoperative and postoperative radiograms, are excellent. Thirteen of the patients had been followed for at least 4 years and there were good results in 12, 7 of which were classified as excellent. Over-correction resulted in one patient, therefore, was classed as unsatisfactory. These children were operated on between the ages of 4 years and 9 years, and the procedure would certainly seem of merit in these difficult cases. (Abstracted by Thomas F. Parrish, M.D., Nashville.)

## STAFF CONFERENCE

### Vanderbilt University Hospital Premature Atherosclerosis\*

DR. JOHN GRISCOM: The patient to be discussed today will be presented by Dr. Wolff.

DR. SHELDON M. WOLFF: The patient today is a 29 year old scrub nurse at this hospital.

*Present Illness.* She was in perfectly good health until one month prior to admission here when, during an operation, she was suddenly seized with oppressive, severe substernal pain which radiated to her left shoulder and down her left arm along the ulnar distribution. This pain was associated with diaphoresis, some nausea, but no vomiting. She dropped out of the operation and went to lie down. The pain continued and became increasingly severe. She went to bed and the next day visited her private physician. He made an electrocardiogram which allegedly showed some "heart damage." She remained off work for one week, she was up *ad lib*, but the pain was constant and unchanging. The following week she was started on Peritrate with some relief of the pain. As far as she can remember, the pain remained constant and she noticed for the first time, some shortness of breath on exertion. She also noticed that this pain increased with emotional upsets and also with exertion. Approximately one week prior to her admission here, she was started on nitroglycerin, sublingually, which relieved the pain for the first time since the onset. The pain would be relieved for 30 to 60 minutes and then recur and in the week prior to her admission here, she took as many as ten nitroglycerin tablets (0.4 mg. per tablet) in one day. She also observed pain at night which would awaken her. She had another electrocardiogram on the outside, which again showed some changes and she was admitted here for evaluation.

There were no acute febrile illnesses prior to her admission and there was no past history of any xanthoma, hypertension or illnesses in her childhood to suggest acute rheumatic fever. There were no other positive historical findings, in particular she has had a normal menstrual history.

*Family History.* The family history revealed that her paternal grandmother and her paternal grandfather both died of "coronary thrombosis" and that her father and mother both were in their middle 50's, living and well. One brother has ulcerative colitis and another brother, 32, is in perfectly good health.

*Physical Examination.* On admission to this hospital, her blood pressure was 120/70, her pulse was 70, she was short and well nourished, obviously anxious. No xanthomatous deposits were

noted. Fundi were normal. Examination of the chest revealed that there was a slight pectus excavatum which had been present since birth and that there was some slight tenderness over the left fourth and fifth costochondral junctions without heat, redness or swelling. Palpation increased the pain but it did not duplicate the substernal pain. The lungs were clear to auscultation and percussion. Examination of the heart revealed it to be of normal size. P-2 was equal to A-2. The rhythm was regular and there was a soft, Grade I, blowing systolic murmur heard over the precordium which changed markedly with respiration and position. Peripheral pulsations were intact and appeared normal. Examination of the abdomen revealed no organ enlargement. The rest of the physical examination was within normal limits.

*Laboratory Data.* The laboratory data on admission revealed a PCV of 46%, a white count of 5,200, and a sedimentation rate of 4/0. Her blood chemistries, including N.P.N., TSP and serum electrolytes, were all within normal limits. Her serum cholesterol was 190 mg.%, PBI was 5.7 microgram and an L.E. preparation was negative.

She had an electrocardiogram on admission to the hospital which showed some ST depression in V-4 and V-5, which was suggestive of coronary insufficiency. (Fig. 1.) A Masters' test was car-

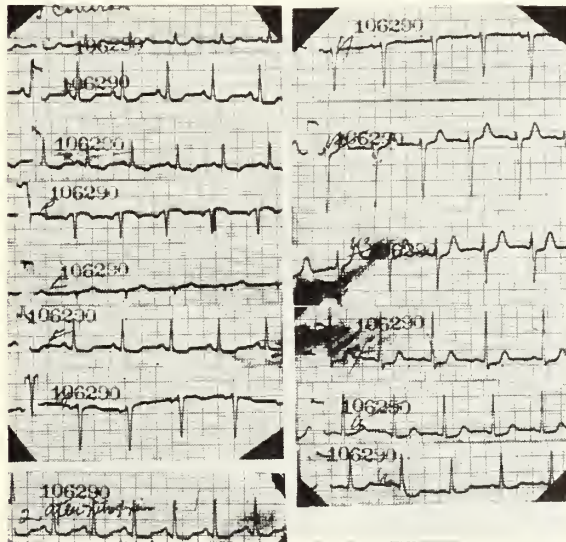


FIG. 1. Resting or Control EKG.

ried out which showed further ST depression in Lead II, V-4 and V-5, immediately after exercise (Fig. 2), and five minutes after exercise (Fig. 3) there was return to the pattern seen prior to exercise. Chest film and cardiac fluoroscopy revealed questionable "slight" enlargement of the pulmonary conus. Barium swallow was negative.

*Hospital Course.* On March 5, which was two days after admission to this hospital, she was started on Dicumarol. She has noted pain only once at night since she has been here. She has been on nitroglycerin and while she is awake

\*From the Department of Medicine of the Vanderbilt University School of Medicine and Vanderbilt University Hospital, Nashville, Tenn.

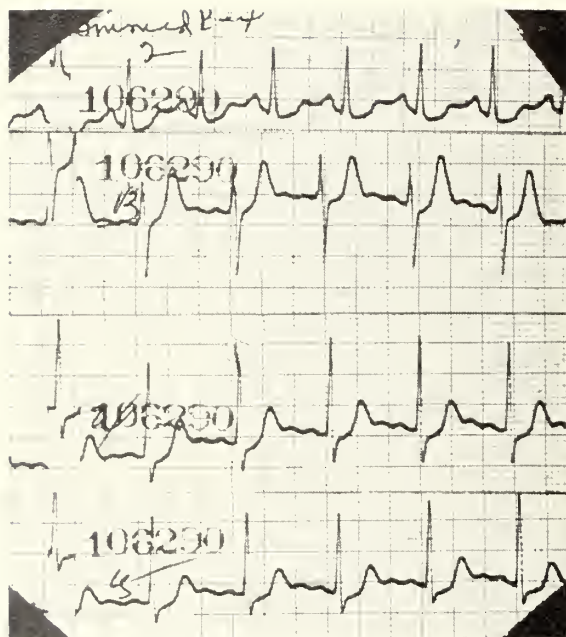


FIG. 2. EKG. (leads 2, V<sub>3</sub>, V<sub>1</sub>, V<sub>4</sub>) 2 minutes after exercise.

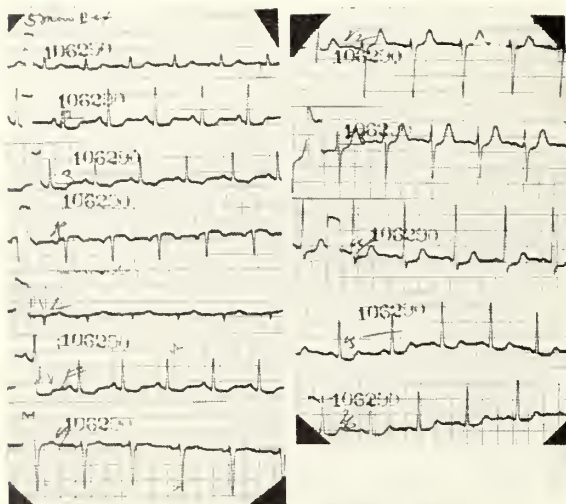


FIG. 3. EKG. 5 minutes after exercise.

during the day and moving about, she still notes the constant pain substernally, radiating to her left arm.

DR. GRISCOM: Dr. Charles B. Thorne will open our discussion.

DR. CHARLES B. THORNE: I don't think there is anything to demonstrate on her physical examination. She looks quite well, as you see. Needless to say, we have been quite perplexed by the problem. Five weeks ago this morning, she was working, feeling quite well and, as Dr. Wolff describes, suddenly had pain. She was sweating, cyanotic, breathless and obviously uncomfortable. We were almost forced to do an electrocardiogram. She practically

talked us into doing it and we would like to pass these around and let you see them. The physical findings were perfectly normal. The retinal vessels and the retinal surfaces were quite normal. Her skin is normal; the tissues seem intact and do not seem peculiar. She does not have any unusual hyperextensibility of the joints. I am not terribly impressed with the murmur, and I do not think any of us who have listened to her heart are impressed. It's a very soft, Grade I, if you will, murmur. We thought of many different possibilities, some of which, I am sure, others in here could think of better than we. We have looked carefully at the films which are available, for evidence of disease of the esophagus, for hiatus hernia, for constricting bands of the esophageal structures. We have asked the radiologists to look carefully at the ascending aorta for evidences of decreased pulsations or widening. None seem present. We have thought about the possibility of polyarteritis or periarteritis, lupus or collagen disease of some type. The L.E. preparation studies are negative. Sedimentation rates have always been normal. White count has always been normal. Transaminase has always been normal. In considering the various possibilities, we obviously come to the possibility of premature atherosclerosis and to introduce this subject and for further discussion, we will ask Dr. Mann to open the discussion.

DR. GEORGE V. MANN: This problem presents such a rare set of circumstances that I would prefer, rather than discuss this particular problem, to say a few things about the general problem of premature atherosclerosis. I do not question that this woman has coronary artery disease but I am not convinced that it can be on the basis of atherosclerosis alone. I am sure that I don't know what is complicating this situation but the combination of these clinical findings in a woman of 29, who seems to have good hormonal function, who is not overweight, who is not hypercholesteremic and who is not hypothyroid, all make this situation extremely unusual. If one considers the data of the National Office of Vital Statistics, for example, in the year 1950 there were in the order of 250 women of this age who were reported to have died



of coronary heart disease from a population of eight million. Now, if we allow for the fact that some of those were mistaken diagnoses and others were truly hypercholesteremic persons and others were probably reported as of this cause but primarily were a consequence of aortic valvular disease, one can see that the number of persons who must have died of atherogenic coronary heart disease was exceptionally small. I would like to re-emphasize for use in later discussion, the factors which I have just mentioned which seem to influence the rate of development of coronary heart disease. These factors are sex, obesity, blood pressure, serum cholesterol level, thyroid function and age. We all have been taught, and you know from your clinical experience, that these factors are commonly involved in situations where the development of coronary heart disease seems to be accelerated. For example, we know quite well that the age incidence of coronary heart disease begins to increase precipitously at about age 35 and reaches a peak at about age 55. The serum lipid levels show a nearly parallel curve for men. For females, the curve looks a little different. But the point is that under the age of 50 or 55, the cholesterol levels for females are consistently lower than for males. If we superimpose on this curve, the accumulated data for men who have known coronary heart disease, we find that in the younger age group, the disparity between cholesterol levels in normals and in men with coronary heart disease, becomes increasingly great. (Fig. 4.) We interpret this to mean that there must be two kinds of people: those who have a familial disturbance of their lipid metabolism and who are unusually prone to coronary disease, and those who do not have this disorder.

It is possible to document the widespread clinical belief that three measurable clinical

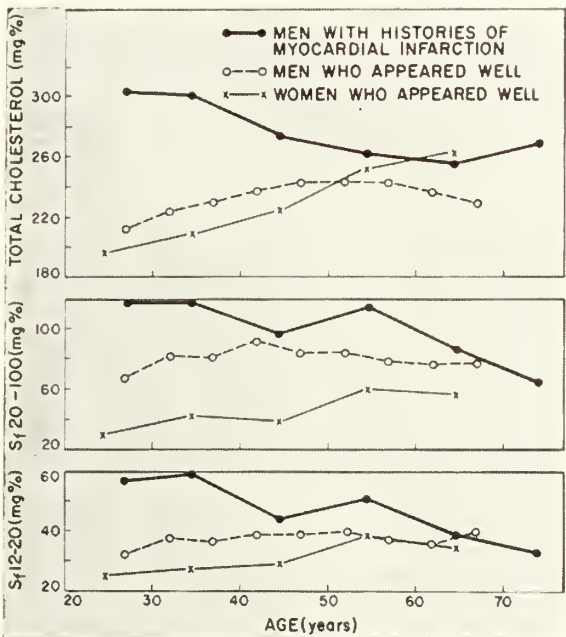


FIG. 4. The serum lipid levels in well people and in men with myocardial infarction. (previously published in Am. J. Med. 22: 605, 1957)

factors are definitely related to the accelerated development of coronary heart disease. These are blood pressure, relative weight, a measure of obesity and serum cholesterol. (Table 1.) This is the Framingham experience.<sup>1</sup> There are other confirmatory examples of these relationships. We are relating here the incidence of new coronary heart disease in men age 45 to 62, who were previously free of heart disease. Notice that when they are high in all three of these attributes, the rate of new disease in four years is high, 143 per thousand; when only one is high, the rate is somewhat less; and when all the stigmata are absent, the rate is very low. This is one basis then for your common impression that coronary heart disease is accelerated by disturbances of these factors.

Now then, a word about possible treatment. Many of these things we can do

Table 1

THE INCIDENCE OF ARTERIOSCLEROTIC HEART DISEASE IN MEN 45-62 YEARS  
OVER A 4-YEAR PERIOD OF OBSERVATION IN THE FRAMINGHAM STUDY

(The incidence of new coronary heart disease in this study over the four-year period was 58 per 1,000 men)

Blood Pressure	Relative Weight	Serum Cholesterol	No. of Men in Group	% of Population	New Disease
High	High	High	105	12	143
High	Medium	Medium	290	33	79
Medium	Medium	Medium	186	21	38
Medium	Low	Low	198	23	25
Low	Low	Low	98	11	10

Adapted from Dawber, Moore and Mann: Am. J. Pub. Health 47:4, 1957.

something about. We can, for example, do something about blood pressure with intelligent and studious attention to salt restriction and hypotensive drugs. We can do something about cholesterol level in these ways: we can usually lower it with moderate restriction of fat intake to 50-70 grams per day, we can affect it by reducing the weight to a point between 90-100% of the "ideal weight"; and such special dietary agents as the sitosterols and nicotinic acid, I consider to be in the realm of research procedures at the present time and are not to be recommended for general clinical use. We can also do something about cholesterol by giving thyroid hormone. This however requires large amounts, in the order of 5 grains or more per day and will be accompanied by certain complicating side effects. Estrogens, Premarin for example, in doses of 2.5 to 5 mg. per day, will also produce often disqualifying feminizing side effects. But this, in general, is the kind of armamentarium that is available for the management of these problems. All of these you will notice depend upon the basic assumption that the cholesterol level is, in fact, related to the development of atherosclerosis and that by treating the cholesterol level, we delay atherogenesis. In the instance of this woman, as I said earlier, I am skeptical that her coronary heart disease, which I believe is real, is in fact related to atherosclerosis alone. I suppose the most probable cause would be some anomalous structural abnormality of the coronary artery system but lacking evidence, this is useless conjecture. Since she is thin, feminine, normocholesteremic and normotensive, none of our armamentarium is applicable. I believe reassurance, symptomatic treatment and observation will be the best management.

DR. GRISCOM: We have time left for discussion from the audience. Are there any questions or comments?

DR. RICHARD FRANCE: Dr. Mann, do you think that diabetes produces a factor over and above the cholesterol levels responsible for atherosclerosis?

DR. MANN: Yes, I suspect so but this has been impossible to demonstrate in a measurable way. We can't do it with experimental diabetes. The suspicion is that diabetes

does something to the connective tissue ground substance, but no one has been able to show this in a convincing way.

DR. WALTER NANCE: Is there a higher incidence of atherosclerosis among persons with Turner's syndrome and, among this group, does it make any difference whether they are genetic males or females?

DR. GRISCOM: Would you like to answer that, Dr. Mann?

DR. MANN: No, I do not think I would. Turner's syndrome is so rare, this question is academic. It is, of course, established that castration of female patients removes much of their immunity to atherosclerosis. Do you have any comment, Dr. Liddle, in that respect?

DR. GRANT LIDDLE: Turner's syndrome is so infrequent that there could hardly be enough experience to answer the question.

DR. JOE MERRILL: Does I<sup>131</sup> ablation of the thyroid for intractable angina lead to acceleration of the atherosclerotic process?

DR. MANN: This question is related to the old "saw" about the relationship of myxedema to atherogenesis. There are so few untreated myxedematous that we really don't know. Dr. James Means says that he doesn't know and it seems to me that he would know if anyone did. We do know that we can accelerate experimental atherosclerosis by inducing hypothyroidism and it is on that basis plus the recent demonstration of the effect of thyroid medication, that we relate atherogenesis to thyroid metabolism.

DR. CRAWFORD ADAMS: Was there any history of respiratory infection within the last two months in this girl?

DR. WOLFF: No sir, there wasn't.

DR. ADAMS: If there were, viral agglutination studies might be done to exclude Coxsackie, infectious mononucleosis, etc., as possible etiologic agents in a myopericarditis.

DR. GRISCOM: Would anyone like to suggest a diagnosis? I am sure no one is 100% happy by any means with the one we have. Dr. Grossman?

DR. LAURENCE GROSSMAN: What about the emotional status of this young lady?

DR. GRISCOM: She works here and is described by her fellow workers as ex-

tremely stable. As far as we know, there have been no supratentorial aspects over and above a secondary reaction to her illness. However, it is always possible this may be a factor.

DR. MANN: This brings up an interesting problem which Dr. Newman may want to discuss. There are a number of evidences now from various sources that we cannot avoid the conclusion that emotional stress—if I can use that nasty word “stress”—emotional stress tends to produce hypercholesteremia. You may be familiar with the work of Friedman and Byers, in San Francisco, who showed that certified public accountants get hypercholesteremic at about the time the squeeze comes on them for filling out the tax forms. There are a variety of such evidences. We have no idea what the mechanism of this is and the particular handicap for study is that we have no adequate way of measuring emotional stress. Until we get one, I can hardly see how we are going to make any progress.

Dr. Newman, would you like to comment on the study that you initiated with respect to stress and cholesterol?

DR. ELLIOT V. NEWMAN: Well, before talking about that, I would like to say that we have left out surgery here. It may be highly experimental but there have been some successes in the removal of clots from coronary arteries in cases of intractable angina. As Dr. Kattus pointed out during his recent visit, when a person has angina, if it's due to closure of coronary arteries of the ordinary type, the person is almost certain to have at least one main coronary artery already closed and be going on collateral. I think we should keep that in mind. It is highly experimental but there have been some successes in surgery. Another thing I would like to bring up with respect to diagnosis. There are very rare cases of congenital origin of the coronary vessels, people who seem to get along for quite a while and then do very badly. There was one famous case in Baltimore. It was called the case of the “evil eye,” where a man scared a woman and she had acute angina and subsequently had a myocardial infarction. She was found to have one of the coronary arteries coming off the pulmonary. Well, to get back to stress, we are studying this aspect, but our findings at present are

too preliminary to make any definite conclusions. The work quoted by Dr. Mann certainly suggests that this may be a factor.

DR. GEORGE MENEELY: I have been elected as spokesman of a small group over here which I will refer to as the “loyal opposition.” We think this is a normal EKG and a normal Masters' test.

DR. NEWMAN: Dr. Ramsey, *please!*

DR. LLOYD RAMSEY: When there is a difference of opinion, the first order of business is to define the difference. Often one finds that the two parties are in reality speaking of different things and a real difference does not exist. First, we would say that this patient has an abnormal electrocardiogram at rest. It is abnormal because of the depression of S-T segments. That the S-T segments are depressed seems to me to be obvious, the interpretation of the meaning of this S-T depression is one of opinion.

Next, the exercise test done on this patient can hardly be called a Masters' test because significant S-T depression existed before exercise. If this had been a Masters' test, the S-T depression of more than 0.5 mm. following exercise would have made it a positive test and the test could be interpreted in light of the numerous control studies done in the past and reported in the literature. Since, instead, it was an exercise test for which no valid controls are available, we can only say that the S-T segment depression did increase after exercise. In light of the clinical history and the fact that chest pain occurred with the exercise, it seems probable that this added S-T depression occurred because of an increase in myocardial ischemia, but this is only an opinion. It would be of considerable interest, and perhaps allow more valid conclusions, to see if this patient's resting electrocardiogram S-T depression was decreased when the patient was breathing high concentrations of oxygen.

DR. GRISCOM: I think we have had a lot of interesting and stimulating discussion on our first case. The diagnosis, be it right or be it wrong, will only be established after further observation and care.

#### Reference

1. Dawber, T. R., Moore, F. E. and Mann, G. V.: Coronary Heart Disease in the Framingham Study, *Am. J. Pub. Health* 47:4, 1957.



## CLINICOPATHOLOGIC CONFERENCE

### Kennedy Veterans Administration Hospital\*

#### Metastatic Pulmonary Carcinoma

James W. Pate, M.D. and J. M. Young, M.D.

#### DR. JAMES W. PATE:

*Present Illness:* This 60 year old Negro was admitted for the first time with a chief complaint of cough and pain in the left hip of 6 weeks' duration. During the preceding 5 months he had noted 3 to 4 day episodes of aching pain in his right shoulder, left heel, and left foot. The cough had been dry and nonproductive and coughing aggravated the hip pain, as did motion. He denied exertional dyspnea, orthopnea, chest pain, fever, chills, and hemoptysis. He had noted slight generalized weakness and malaise.

*Physical Examination.* T, P, and R. were normal. B.P. was 140/88. The patient was described as well developed but thin and in no distress. There were medium coarse rales distributed throughout both lung fields. The heart was not enlarged and the rate and rhythm were regular. No masses were felt on abdominal examination.

*Laboratory Data.* Complete blood count was normal. Sedimentation rate was 41 mm./hr. corr., STS negative. Urinalysis revealed 1+ albuminuria. Total serum protein was 7.5 Gm. with albumin of 3.6 and globulin of 3.9 Gm.%. BUN was 13 mg. and FBS 82 mg.%. Numerous sputums were negative on smear and culture for acid-fast organisms and fungi. Cultures for predominant organisms revealed pneumococci and alpha streptococci. Febrile agglutinations were negative. C-reactive protein test was 5+. Histoplasmin complement fixation test was negative. Blood cultures were sterile. Biopsy of a supraclavicular lymph node revealed only reactive hyperplasia, and this was negative on culture for acid-fast bacilli and fungi. Bronchoscopy was negative. Many examinations of the sputum for tumor cells were negative, and the sputum contained no fat droplets. Pleural fluid revealed a total white count of 4200 with 84% polys and no tumor cells; culture of fluid was negative. EKG revealed only sinus tachycardia. Test of the urine for Bence-Jones protein negative. Skin tests with P.P.D. #1 and #2, blastomycin, histoplasmin, coccidioidin were all negative.

**DR. ETTMAN:** *X-Rays.* The initial chest plate revealed widely scattered irregular productive infiltrates in both lung fields with some consolidation in the right base. (Fig. 1.) Subsequent chest films showed

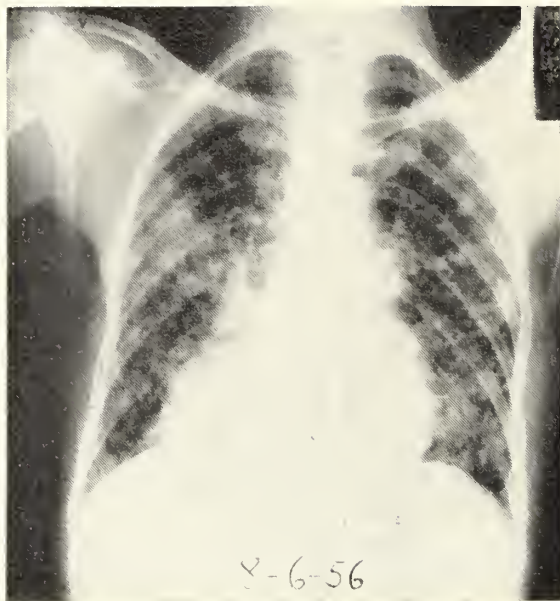


FIG. 1.

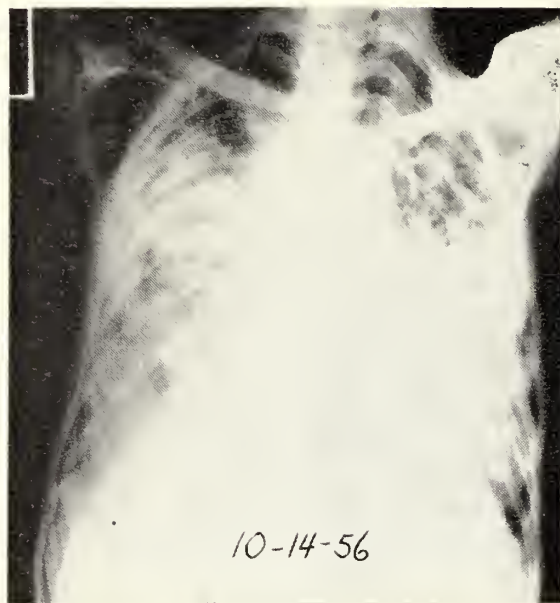


FIG. 2.

progression of the infiltrations with confluence in many areas. (Fig. 2.) Metastatic survey films and barium enema were negative except for osteoarthritis of the lower spine. One chest film revealed some pneumothorax and subcutaneous emphysema and an esophagram at this time was negative.

**DR. PATE:** *Hospital Course.* The patient had almost daily elevation of temperature to 100°-102°. He was given penicillin, streptomycin, chlorotetracycline, erythromycin, sulfadiazine, tetracycline, and oxytetracycline, none of which had any significant effect on his course. Dyspnea of increasing severity marked his course and about

\*From the Thoracic Surgery and Laboratory Services of the Veterans Administration Medical Teaching Group Hospital (Kennedy), Memphis, Tenn.

one week before death he developed a pneumothorax following a severe coughing episode. He coughed frequently but this was productive of only whitish mucoid sputum. Progressive pulmonary insufficiency continued; he was digitalized, placed on metacorten and given oxygen by tent. He died in respiratory failure.

### Discussion

A differential diagnosis of pulmonary infiltrations may cover almost the entire spectrum of disease including almost all infections, neoplasms, degenerative diseases and immunological responses.

This patient had a nonproductive cough for six weeks. Cough may be due to numerous diseases. The cough impulse is transmitted by the fibers of the vagus nerve to the medulla. Lesions of the medulla or intracranial lesions in general may be associated with severe and rather distressing cough, due to direct involvement of the medullary cough center or to the intracranial portions of the nerve. In this case, there is no indication of such a mechanism. The second cause of cough is irritation of fibers or branches of the vagus nerve. The meningeal branch may be irritated in intracranial lesions. The auricular nerve may be irritated by lesions in the external auditory canal, such as furuncle of the external ear. The pharyngeal fibers of the vagus nerve are probably the most common site of irritation producing cough with the exception of the lung itself. We are quite aware of this from the "hacking" cough present in acute pharyngitis. The superior laryngeal branch of the vagus may transmit cough impulses, but irritation of the recurrent laryngeal nerve does not cause cough. The cardiac branches transmit cough fibers and a cough is frequently present in cardiac disease, particularly of the acute variety. The pulmonary fibers of the vagus nerve are notorious in production of cough and are the most frequent paths of transmission. Cough in this patient is probably due to the latter mechanism. The esophageal and rarely the pericardial branches of the vagus may also produce cough.

The lack of sputum with cough is noteworthy. The lack of production is seen in all the coughs discussed above which are reflex in origin. The cough due to excess irritability after viral infections of the lung

is nonproductive. Many neoplastic infiltrative processes of the lung which do not actually produce blockage to the bronchi or secondary infection may be associated with chronic nonproductive cough.

The character of the cough frequently helps us in determining the cause. The low-pitched, soft, effortless, productive cough seen in tuberculosis is almost characteristic of this disease, or longstanding bronchiectasis, or pulmonary suppuration. The classical laryngeal bark of laryngeal edema is pathognomonic of this disease. The brassy cough seen in aneurysms or other space-occupying mediastinal lesions producing tracheal pressure is characteristic. The deep bovine cough of recurrent nerve paralysis can be diagnosed from across the room. The mechanism for precipitation of the cough aids in delineating the cause. The cough of bronchitis and particularly bronchiectasis is usually precipitated upon arising in the morning. On the other hand, if the cough is first noted and most serious at night after going to bed, it usually points to either a local disease of the pharynx, swelling of the uvula or to a bronchopleural fistula with spilling from the empyema space into the bronchial system upon assuming a flat position. The cough of heart disease and pulmonary insufficiency is usually precipitated primarily by exertion.

The second symptom which is important in this case is pain in hip, foot and heel. This generalized joint involvement usually makes us think of osteo-arthritis when associated with a pulmonary lesion; however, it might be of infectious origin such as a psoas abscess or a spinal abscess with radiation to the hip. The pain may be due to tumor of the sacrum such as osteogenic sarcoma, chondrosarcoma, chordomas, teratomas, etc. It may be degenerative in origin, as from osteo-arthritis, "ruptured" lumbar discs, or similar disease. The pain in the shoulder may be due to many causes. It may be referred pain from the diaphragm. It may be caused by direct involvement of the structures in this area by a Pancoast's tumor or from osteo-arthritis, bursitis, etc.

The laboratory studies in this case have little to add. The sedimentation rate is



valueless in a positive way as is a slight albuminuria which is seen in so very many disease states. The AG ratio of approximately 1:1 makes us think of such diseases as sarcoidosis, berylliosis of the lung or liver involvement. The liver might be involved from an infectious or neoplastic disease, or even a collagen disease which may produce lung changes. The sputum, being negative for fungus, is of value. The culture of pneumococcus and streptococcus from the sputum adds little since these organisms are so commonly seen in the pharynx and tracheobronchial systems of normal people. Increase in C-reactive protein is not characteristic of any disease and in this particular case probably does not add to our worthwhile information. A scalene node biopsy was done. In this hospital, from 100 scalene node biopsies, every case, that was later proved to have sarcoidosis, has shown evidences of sarcoid in the supraclavicular nodes. In carcinoma and tuberculosis, the node biopsies are of less value. Occasionally, tuberculous organisms may be cultured from the node, but only rarely is this the first site of their cultivation. In carcinoma, it is interesting to note that there has been no case in which nodes were not palpable before surgery which showed cancer on histologic section in our hospital. On the other hand, in those cases in which nodes were obviously palpable in the supraclavicular fossa, about 85% have shown carcinoma on section. In this case, we have no mention of nodes being palpable in the supraclavicular fossa before surgery and, therefore, the presence of a negative finding neither adds nor detracts from the possibility of this being bronchogenic carcinoma. A negative bronchoscopy adds little. Only about 30 to 40% of bronchogenic carcinomas are seen on bronchoscopy, and these are usually those involving the major bronchi near the hilum. From the description of this man's X-rays, if this is bronchogenic carcinoma, it is probably peripheral in location and, therefore, we should not expect to see it on bronchoscopy. In the era of antibiotic therapy, very rarely do we see evidence of tuberculosis on bronchoscopy, so that bronchoscopy does not aid in ruling out this disease. A negative cytology is

significant in that about 85% of our proven bronchogenic carcinomas will have malignant cells demonstrated on cytology. Examination of pleural fluid in our hands is of value primarily from gross examination. We do not know from the physical examination or from the history when the pleural fluid appeared. A culture negative for acid-fast bacilli and fungus actually does not contribute anything.

The fever of 100 to 102 likewise contributes nothing to our information since fever is so frequently seen in pulmonary disease of all origins. The infectious diseases characteristically have fever; however, the neoplastic or degenerative diseases are frequently secondarily infected with production of fever. The dyspnea on exertion is not mentioned on admission and we do not know when in the course of his illness it occurred. The pneumothorax that was mentioned is not clearly delineated as to time of occurrence. The most common causes of pneumothorax in our hospital are: (1) rupture of a bleb; (2) tuberculosis; and (3) bronchogenic carcinoma. However, a likely possibility in this case is that this pneumothorax was iatrogenic since we know that the patient's chest was tapped and the pneumothorax was not present on admission and, therefore, may be due to either the doctor admitting air into the chest at the time of tap or from puncture of the lung.

The presence of a white mucoid sputum late in the course appears significant. When we see sputum of this type, we usually think of early tuberculosis, carcinoma of the lung and specifically alveolar cell carcinoma, in which case the production of larger amounts of white mucoid sputum is characteristic. Metastatic carcinoma, particularly when it involves the lymphatics throughout the lung, may produce white mucoid sputum but usually not in as large amounts as that seen in alveolar carcinoma.

The X-ray in this case offers about as much indication of the correct diagnosis as any other part of the protocol. We see the widely scattered, irregular, productive infiltrates involving both lung fields, particularly dense over the right base. As we follow these along, we see the infiltrations



Table I

I. <i>Infections.</i>	
1. Viral.	"Atypical pneumonia," Psittacosis, Influenza, Smallpox, Chickenpox, Mononucleosis, Lymphocytic choriomeningitis, Measles, Cytoplasmic inclusion pneumonia.
2. Rickettsial.	Q fever.
3. Bacterial.	Streptococcal, Pneumococcal, Staphylococcal, Typhoid, Tularemia, Friedlanders, Anthrax, Plague.
4. Tuberculosis.	
5. Fungi.	Blastomycosis, Histoplasmosis, Coccidioidomycosis, Cryptococcosis, Aspergillosis.
6. Parasites.	Amoeba, Echinococcus, Hookworm.
II. <i>Neoplasia:</i>	
1. Primary.	Squamous, Adenocarcinoma, Alveolar-cell.
2. Metastatic.	Kidney, Thyroid, Melanoma, Pancreas, GI tract, Breast Prostate.
III. <i>Pneumoconiosis.</i>	
1. Active.	Silica, Asbestos, Talc, Mica.
2. Inactive.	Iron, Silver, Platinum.
3. Chemical.	Beryllium, Magnesium, Osmium, Gases.
4. Fibrosis.	Sugar cane, Cotton dust, Cereal dust.
5. Carcinogenic.	Arsenic, Radio-activity, Asbestos (?)
IV. <i>Unknown Etiology.</i>	Polyarteritis nodosa, Scleroderma, Lupus erythematosus, Eosinophilic granuloma, "Storage diseases," Sarcoid.

become denser and more confluent as time passes and they show no response at all to treatment. A differential diagnosis of an X-ray picture such as this covers a wide spectrum and is best given in a tabular form. (Table 1.)

#### *Infections:*

1. *Specific bacterial pneumonias including tularemia, typhoid, etc.* These usually produce bronchopneumonia or an area fairly well localized with somewhat denser consolidation. The pneumonic process is greatly overshadowed by the generalized systemic symptoms of the patient.

2. *Viral diseases* are frequently associated with pneumonitis. The pneumonitis seen in atypical viral pneumonia, in Q fever and psittacosis or ornithosis, or even measles, usually produces a picture quite unlike this and of much shorter duration.

3. *Tuberculosis.* Any time we have productive infiltrates in the lung, tuberculosis must occupy a major part of our differential diagnosis. We all know the usual picture of tuberculosis in the upper lobes with a soft, fluffy infiltrate. The particular infiltrates in this case appear to be a little more discrete, a little smaller, more widely scattered and with more involvement of the base than is usually the case with tuberculosis. Also, with tuberculosis of this severity, we would expect severe systemic reaction probably with a relatively high fever, lethargy and severe anorexia in an ill patient with a chronic productive cough with sputum al-

most certain to contain tuberculous organisms. The first and second strength tuberculin tests were negative which certainly points away from tuberculosis, although rarely we may have negative skin tests with tuberculosis.

4. *Fungus Infections.* Coccidioidomycosis usually produces relatively localized tubercles in its early stages but may show cavitation with thin-walled, round cavities. This does not appear to be the x-ray picture of coccidioidomycosis. The patient has no history of endemic exposure in areas in which coccidioidomycosis appears. The skin tests are negative and the sputum shows no fungus. The Negro is much more prone to develop dissemination which is not apparent in this case.

Aspergillosis of the lung is usually secondary to chronic pulmonary disease—either bronchiectasis, bronchogenic carcinoma or chronic long-standing tuberculosis. However, in a few cases, the aspergillus organism may produce acute specific disease of the lung, but this is so rare as to be almost a pathologic curiosity. The acute cases have severe cough which is frequently bloody; fever, prostration, and smooth dense lesions which may contain cavities. The acute form does not show diffuse, fine infiltrates. An x-ray picture almost pathognomonic of secondary aspergillosis would be an air crescent or the double crescent sign due to the floating of the ball of fungus around in the cavity or cyst. Due to the rarity and the lack of these particular peculiarities of

x-ray, I feel we can disregard this diagnosis.

Blastomycosis is not common. We frequently have skin, bone and prostatic involvement, all of which seem to be absent in this case unless we want to consider the polyarthritis as being due to bone involvement. However, blastomycosis usually produces x-ray evidence of bony destruction which is absent in this case. Blastomycosis in the lung most commonly produces large masses of dense disease or abscesses with involvement of the surrounding structures although it may less commonly be miliary in character and resemble this general x-ray picture. Since we have no supporting evidence of blastomycosis, the sputum contains no blastomyces, and the skin test is negative, we are somewhat stretching the point to consider this case blastomycosis.

Histoplasmosis is more commonly seen in this particular part of the country and takes an important place in our differential diagnosis. The skin test is negative, and the sputum does not show the organism. Both of these are usually positive in histoplasmosis but certainly not always. The patient gives no history of exposure to chicken excreta or to other known sites of histoplasmin inoculation. Histoplasmosis may mimic tuberculosis and practically every other conceivable type of lung disease. It seems to be most commonly miliary in character, scattered throughout the lung fields, which this particular case resembles. However, the miliary type of histoplasmosis is usually not progressive to confluent areas and mediastinal node involvement is common. We have complement fixation tests for histoplasmosis which we now do routinely in this hospital although their value is not as definitive as would be desired.

Cryptococcosis may very rarely be miliary; it usually produces large masses of dense disease in the lung. This case shows no evidence of involvement of the central nervous system or in any other site, and again shows no organisms in the sputum. We really have very little to point to this disease. Actinomycosis is usually unilateral, dense, with abscesses, and direct invasion of pleura and chest wall; skin, mouth, and gastrointestinal tract involvement is common.

Parasitic infections of the lung must be considered. Of the parasites involving the lung, hydatid cyst is most usual in the textbook. This disease in the United States is quite uncommon; it occurs primarily in the sheep and cattle-raising portions of the world—South America, Australia, New Zealand and the Middle East. The ingestion of the scolex of the *Echinococcus granulosus* organisms from the feces of the dog into the human gut releases the larvae which pass into the blood stream. About 75 per cent of the time, the larvae are filtered out by the liver and about 25 per cent of the time, they are filtered out by the lungs. In these locations, they usually grow into cysts of varying sizes, showing a fairly slow growth over a period of years. The lesions are almost always cystic but may be multiple with daughter cysts, either within the cyst or in the surrounding tissue. In the lung, almost any symptom may be produced, usually cough or dull pain, pleurisy or actually expectoration of cyst contents or secondary infection. We have none of these symptoms occurring in this patient and have no evidence for a hydatid cyst.

The parasite which I would expect to be most likely in a case of this type in this part of the world is hookworm. The hookworm larvae in large doses may produce acute pneumonitis with a considerable allergic response. The soft, fluffy infiltrates scattered throughout the lung appear to be somewhat miliary and may progress to actual consolidation—in general, an x-ray picture not at all incompatible with this case. However, in these cases, the patient usually has some hemoptysis, is acutely ill for a few days with later chronic pulmonary symptoms for varying periods until the organisms die and are encapsulated. The presence of an eosinophilia or eosinophils in the sputum are good aids in pointing to this diagnosis. However, an acute involvement of this severity and particularly this duration with hookworm is most unusual. *Paragonimus westermani*, tongue worm, and schistosomiasis do not occur in this country.

The second great classification of the differential diagnosis of pulmonary infiltrations is that of neoplasia. Of course, the most publicized at this time is primary bronchogenic carcinoma. Bronchogenic car-



cinoma appears to arise usually from unifocal origin in one particular part of the lung; however, there is considerable evidence, such as generalized bronchiolar metaplasia, that the multicentric origin of bronchogenic carcinoma is certainly possible if not common. However, we can hardly conceive of a primary bronchogenic carcinoma of the usual squamous, adenocarcinoma, or anaplastic type as arising throughout both lungs as we see in this patient. On the other hand, primary bronchogenic carcinoma may frequently arise near the hilum and around the great vessels and spread throughout the remainder of the lung with metastases either by the bronchial system or by lymphatics, or the blood stream. When metastasis occurs by the bronchial system, the usual picture is that of a mass of tumor near the hilum with small satellite tumors in the dependent portions of the same lung, usually the lower lobe. When by the blood stream, we usually have a few solitary nodules scattered throughout both lungs. These are usually discrete, sharply circumscribed and steadily progressive in size. This is not the picture in this case.

An unusual type of bronchogenic carcinoma, which in our series of 600 odd cases has occurred ten times, is that of alveolar cell or bronchiolar carcinoma. Relation of this disease to the Jaagsiekte disease of sheep, which it resembles, is unknown. Alveolar cell carcinoma usually involves the younger age groups and may involve one or all parts of the lung. We have seen cases in which the x-ray resembles very closely that of this patient. The production of white mucoid sputum of large quantities adds significance to this diagnosis. However, the presence of abnormal cells on cytological examination of the sputum is characteristic and is absent in this case. The patient with alveolar cell carcinoma usually goes fairly rapidly over a matter of several weeks or months into an involvement of the entire pulmonary system with pulmonary insufficiency and characteristically dies of pulmonary insufficiency before metastases spread throughout the body. The general course is not at all different from that of this particular patient and, considering all the factors, alveolar cell carcinoma is our

first impression as to the correct diagnosis.

Metastatic carcinoma frequently involves the lung and may produce a variety of x-ray pictures. It involves the lung in about 75% of kidney neoplasms, in about 65% of thyroid neoplasms, in about 60% of malignant melanomas, in about 45% of breast carcinomas, in about 35% of prostatic carcinomas and in about 20% of those of the gastrointestinal tract—the right colon being the most common primary site of metastatic carcinoma of the lung from the gastrointestinal tract. Some of these tumors produce x-ray changes which are quite different from that which we see in this patient. The kidney tumors, for example, usually produce large solitary masses of tumor or, if multiple, usually very discrete, with “snowballs” scattered throughout the lungs. Melanoma frequently produces showers of discrete hard nodules scattered throughout both lungs. Metastatic tumors of the breast may produce this diffuse miliary type of involvement usually due to blockage of the lymphatics in the lung. This lymphatic type of carcinomatous lymphangitis is also seen in carcinoma of the thyroid and pancreas. In carcinoma of the thyroid, the lesions may be multiple and very small. From the pancreas, we may have lesions which closely simulate bronchogenic carcinoma or we may have the fine reticular type of lymphatic involvement which is consistent with this case. Of the various sites of metastatic carcinoma which we consider, there are certain points for and against each. The lack of gastrointestinal symptoms or change in bowel habits, of blood in the feces and a negative physical examination tend to indicate that this is not a tumor of the gastrointestinal tract. A normal complete blood count points away from tumors of the right colon. Of course, the breast is accessible to physical examination and carcinoma of the breast would almost certainly have been suspected from physical examination. The same holds for carcinoma of the prostate, to a lesser degree. Probably some 85 to 90% of carcinomas of the prostate are easily diagnosed by rectal examination and, for this reason, as well as the lack of urinary symptoms and the lack of bone involvement, we shall rule out carcinoma of the prostate as a primary



site. Malignant melanoma, while it may occur in the retina, or even in the esophagus where it is not accessible to physical examination, is usually quite apparent on examination of the patient's skin, mucous membranes or urine.

Carcinoma of the thyroid may occur in any age group; however, the types of tumors are quite different and the activity and appearance of their metastases is different. In a male of 60 years of age, we would expect carcinoma of the thyroid to be of the anaplastic or undifferentiated type, highly malignant and metastasizing. Of course, we would expect the metastases to be nonfunctioning and to be in almost any location, involving the bones, lungs and liver. A carcinoma of this type in a man of this age should be easily felt on physical examination of the neck. The absence of positive findings on physical examination is a strong point against the diagnosis of carcinoma of the thyroid.

Carcinoma of the pancreas, in our experience, has been second only to carcinoma of the kidney as a masquerader of bronchogenic carcinoma. Carcinoma of the kidney, of course, usually does not produce lesions such as we see in this particular patient, and it is frequently associated with hematuria or other evidences of renal involvement which are lacking in this patient. Carcinoma of the pancreas bears a peculiar relationship to the lung as does carcinoma of the adrenal glands. It has been shown in the human that there are direct lymphatic connections from the lower lobes of the lungs through the esophageal hiatus and through the diaphragm to the nodes around the celiac axis, pancreas, adrenal glands and the retroperitoneal space. Metastases from the lungs may go directly by lymphatic extension to these organs and to this area of the abdomen. More commonly, tumors of the pancreas or adrenal gland may easily penetrate these lymphatic channels to the lower lobes of the lung and from there throughout both lung fields, so that we then have a fine reticular lesion involving the entire lung fields but no obvious primary site of tumor. With more involvement of the lower lobes, particularly on the right, we must immediately think of the retroperitoneal structures and particularly the

pancreas and adrenal glands. Adrenal tumors in a male of this age without hormonal symptoms or evidence of renal involvement or abnormal physical examination would be most unusual. Tumors of the adrenal gland rarely produce this massive involvement of the lungs. On the other hand, tumors of the pancreas will frequently produce lymphatic obstruction throughout the lungs, most commonly involving the right lower lobe first. The classical symptoms of carcinoma of the head of the pancreas are, of course, absent in this case. Carcinoma may occur in the tail and body of the pancreas and in such sites is rarely diagnosed prior to death unless it happens to be of islet cell origin. The evidence for this man's having a pancreatic carcinoma is primarily that of eliminating the other sites, and the fact that the course and x-ray appearance easily agree with pancreatic tumor. We have no evidence that this patient does *not* have pancreatic tumor and this is a distinct contradiction to all other diagnoses mentioned except alveolar cell carcinoma. The patient's age, race and sex are certainly compatible with the diagnosis of carcinoma of the pancreas.

Therefore, of all the sites of origin, it seems that carcinoma of the pancreas is the one which we have no reason for discarding. Consequently, this must be our primary consideration as to metastatic origin.

The third great classification of differential lesions of the lung is that of pneumoconiosis. Pneumoconiosis is usually divided into the active, inactive, chemical, fibrotic or carcinogenic groups. The active groups include silicosis, asbestosis, talc, mica, etc. In this particular patient, we have no evidence of involvement with any of these foreign particles. Silicosis usually does not produce an x-ray such as this, is of longer duration and rarely fatal within this short a period of time unless secondarily infected with tuberculosis.

Silicosis usually produces fine, linear infiltrations near the hilum first; these may progress to small nodules from the size of a pin to the size of a pea. They are usually hard, discrete and only in the late stages of secondary infection do they become confluent and larger.

The characteristic of asbestosis is marked physical symptoms with little x-ray change. This patient in the early stages had little evidence of marked pulmonary incapacity and shortness of breath. Asbestosis usually involves the basilar segments of the lung and gives a peculiar, glaring, glassy appearance to the lungs. There are frequently asbestos bodies in the sputum. Talc or mica rarely produces death in this period of time and rarely produces severe pulmonary involvement.

Of the inactive group, which includes iron, silver, platinum, etc., there is no evidence of exposure and the x-ray picture is not suggestive. The course is a little too malignant to warrant serious consideration of these particles.

In the group of chemicals involving the lung, including magnesium and beryllium, we have no history of exposure. Berylliosis could produce this general clinical picture. The rapid course of fulminating pulmonary lesions and the reversal of the AG ratio is not completely incompatible. Berylliosis produces fairly uniform nodules of from 2 to 3 mm. in diameter scattered throughout the lungs. Again, they are fairly discrete and not rapidly changing. There is no positive evidence that this is a case of berylliosis; it is quite unusual, particularly in people of this age and race, so the presence of berylliosis would again be a pathologic curiosity.

The fibrotic foreign particles of the lung include those from sugar cane, cotton dust and cereal dust. The x-ray picture here is not compatible with this type of involvement. The clinical course is too malignant and we have no history of exposure to these materials.

The carcinogenic foreign particles, including arsenic, radio-activity and possibly asbestos, are not really seriously considered here due primarily to the lack of positive evidence of exposure and the generalized involvement of the lungs.

The fourth large diagnostic category is those diseases of unknown etiology, polyarteritis nodosa, eosinophilic granulomas, various storage diseases such as Hand-Schüller-Christian, Neimann-Pick, Gauchers, etc. Sarcoidosis, lupus erythematosus,

scleroderma and polyarteritis may produce lesions of the lung which resemble this. However, the lesions are usually fewer, more discrete and more uniformly scattered. Also, with this magnitude of polyarteritis, we would expect symptoms of involvement of the gastrointestinal tract, hemoptysis or skin and subcutaneous involvement. The patient is somewhat old for this disease and there is no evidence of confirmatory lesions. These considerations, along with the fact that the x-ray pictures are not at all classical of polyarteritis, the patient's course is not typical, and his method of death is completely unknown, to me, in polyarteritis, tends to make me discard this thesis.

Eosinophilic granuloma usually is a solitary lesion or few in number. There is frequently bone involvement and the patients usually do not die of pulmonary insufficiency and certainly not in this period of time. The various storage diseases of the lung usually occur in children, the systemic reaction is more striking than the pulmonary component. While we would consider them strongly in a lesion of this type occurring in a child, the lack of evidence of metabolic disturbance, liver disease or other symptoms makes us discard this possibility in this patient.

Sarcoidosis may produce almost any type of pulmonary involvement, but the nodes of the hilum are usually enlarged as are nodes elsewhere in the body. There is frequently bone involvement of the hands, and the patient rarely dies this fast. It also tends to occur more commonly in patients younger than this. While sarcoidosis may be parenchymal in the lung, it is usually not portion of the overall clinical picture which widespread. Lupus erythematosus may produce pulmonary disease, but again the pulmonary involvement is usually only a small is lacking in this case. Scleroderma is usually thought of as involving the skin, and the esophagus when the chest is affected, but may also produce a broncho-pneumonic type of infiltrate in the lung. Again, we have no other evidence of scleroderma in this patient and the pulmonary involvement is so striking that we cannot help but believe that the lungs are a primary and major site of pathology in this case.



After consideration of all of these lesions, we are back to the positive known facts in this case. These include hip, knee, shoulder and ankle pain. To be considered is psoas abscess, suppurative disease of the joints, radiated pain, osteoarthritis or more likely, pulmonary osteoarthropathy. We know that x-rays of the back show osteoarthritis. Another factor is the 1:1 AG ratio. The things which this indicates are sarcoidosis, berylliosis or involvement of the liver, probably by metastatic disease. A factor, certainly of significance, is the sputum which is negative for all organisms and foreign bodies. This makes us lean away from the entire groups of infections, pneumoconioses and toward those of neoplastic origin. The white mucoid character of the sputum makes us lean primarily to alveolar cell carcinoma or metastatic gastrointestinal carcinoma.

The negative scalene biopsy indicates only one thing to us—it is highly unlikely that this patient has sarcoidosis. A negative cytological examination on sputum specimens makes us think that this patient is somewhat unlikely to have primary bronchogenic carcinoma or primary alveolar cell carcinoma, as attractive as this diagnosis seems. In all the infectious diseases we would expect a fever; but, on the other hand, any disease involving the lung may produce secondary infection. Fever, therefore, is of little clinical importance. Even small areas of atelectasis or pulmonary infarction may produce a fairly marked fever without any positive evidence of inflammatory reaction.

The x-ray, and the character of the sputum, are the two things which give us most information in arriving at the positive diagnosis. Of the infectious diseases, we would select none as fitting this case. Of the neoplastic diseases, we would pick the alveolar cell type of primary cancer. Of metastatic lung cancers, we would pick a primary site in the body or tail of the pancreas and say that the tumor is probably of duct-cell origin and relatively small. Of the pneumoconioses, we have a tendency to consider only berylliosis as far as the x-ray and sputum are concerned, but because of the rarity of the lesion and the lack of exposure, we shall not even seriously in-

clude that. Of the diseases of unknown etiology, the only one which seems to fit in this case is polyarteritis nodosa and we have given our reasons for discarding this diagnosis. So, as a final differential diagnosis, we would consider strongly the following things: (1) Neoplasia; (a) Primary alveolar cell; (b) Metastatic—most likely from duct-cell origin from body or tail of the pancreas.

The age of the patient, the rarity of the lesion, the lack of a massive mucoid sputum, the fact that there is no *dense* consolidation of one lobe with a lesser involvement of the other lobes and no malignant cells in the sputum all point away from alveolar cell carcinoma. The x-ray most closely resembles lymphangitis carcinomatosa. On the other hand, against the diagnosis of pancreatic carcinoma we have not a single valid positive factor which gives us a basis for discarding this diagnosis. Consequently, of the two most probable diagnoses (i.e., primary alveolar cell carcinoma and metastatic carcinoma from the body or tail of the pancreas), we reach our final clinical diagnosis of carcinoma, primary, in the body or tail of the pancreas, most probably of duct-cell origin, with generalized involvement of the lymphatics of the lungs and death from pulmonary insufficiency.

#### Anatomical Findings

DR. J. M. YOUNG: Post mortem examination disclosed a 60 year old emaciated Negro male. Cervical lymph nodes were enlarged and hard. Both pleural spaces contained serosanguinous fluid, and the hilar and mediastinal nodes were replaced by grayish white tumor. Tumor nodules were studded over the visceral and parietal pleura, particularly in the diaphragmatic region.

The left lung weighed 860 Gm. and the right 1300. Throughout both were numerous poorly defined nodules of grayish white tissue, and the right lung was almost consolidated by tumor. Investigation of the bronchi disclosed no primary source but did show copious amounts of mucus. Microscopic sections from both lungs disclosed widespread lymphatic and vascular permeation by tumor cells which were arranged in irregular duct-like patterns. The cells were

(Continued on page 146)



# President's Page

## REPORT TO THE MEMBERSHIP



JAMES C. GARDNER

In this final president's page before my term of office expires, is a report on the progress of our affairs.

It has been enlightening for me to sit in the House of Delegates of the AMA to hear the many resolutions and reports presented. The magnitude of these matters as they affect our total economy and population, impressed me greatly.

I have visited a number of our county medical societies. It has been rewarding to find that medical needs are being met by dedicated physicians. Many of these men and women are playing increasingly important roles as citizens in their respective communities.

We have seen progress in our Association in that the Tennessee Plan revision has gone into effect. Our health information television series has been successfully conducted. A committee is working on the problems of the aged and now there has been set into motion a statewide council on aging.

Agreement has been reached wherein a closer relationship and direction of activities can be brought about with the Tennessee Medical Foundation and the Tennessee State Medical Association.

Being president of an organization such as the TSMA gives one a great opportunity to reflect. The thing that has stood out in my mind has been the fact that we have only one solid aim and purpose. That is, to promote better medical care. Everything we do and every activity we sponsor is intended to contribute to the achieving of that single goal.

The economics of medicine is the principal problem that is now facing us. The cost of medical care has increased sharply in recent years, though the price rise for such care has not been greater than the rise in the total cost of living.

In our annual meeting just concluded, further improvements were made in that out-of-state speakers were invited to address the general scientific meeting. This is a forward step. In this way, we hope to build increasing interest in attendance in our general scientific programs.

It is recommended that physicians take a more active part in public affairs and to increase their status as being good citizens. I also recommend that doctors take a greater stand in political affairs. We must turn the emphasis from what we cannot do in politics to what we can do, if we want to.

During the past year, we have made a start on finding the solution for a method of financing medical care of the aged. I believe this to be a most important objective. The time is short, if we are to forestall legislation of the Forand type.

As my term ends, I have a humble sense of gratitude to members of the Association, the Board of Trustees, the officers and committeemen.

It has been a great honor to be president of the Tennessee State Medical Association and to have the privilege of serving you, who on innumerable occasions have shown that principle is placed above expediency and the public welfare above financial consideration.

Let us all be actively and openly for those things which will improve our communities and offer greater opportunities to our citizens.

## *The New President*



HARMON LAWRENCE MONROE, M.D.  
ERWIN

## *Dedication to Service Is the Symbol Of TSMA's 71st President*

The year 1934 marked the date that Dr. Harmon Lawrence Monroe began an active career of service to medicine and the public. Since then, he has not ceased to work for organized medicine and to lead in furnishing the best type of medical care to the citizenry of his State.

Dr. Monroe has been in the forefront of those actions adopted by the Tennessee State Medical Association that have placed organized medicine in a leading position. He was the founder of the idea for an Indigent Hospital Law, wherein persons who had no means of paying for their medical care could obtain hospitalization, with the doctors of Tennessee furnishing their services without charge. With relentless effort, he pursued his idea until the Indigent Hospital Act was placed upon the statute books of Tennessee.

He has a keen interest not only in affairs of medicine, but those in his community as well as projects for the betterment of the entire state population.

TSMA's new president is a native son. He was born September 10, 1909, at Maynardville, the son of Judge and Mrs. W. P. Monroe. He has inherited a great trait from his father, in that he too is able to judge with calm deliberation many problems confronting medicine.

Dr. Monroe attended school in Maynardville and in 1925 was graduated from Horace Maynard High School. He received his B.S. Degree in 1928 from Lincoln Memorial University. Following his pre-medical work, he entered Emory University School of Medicine in Atlanta, where he received his M.D. degree in 1932. He was a member of Phi Beta Pi medical fraternity. Internship in pathology was served at the Grady Memorial Hospital in Atlanta.

In 1934, upon entering practice at Erwin, Dr. Monroe began to demonstrate his abilities and leadership as a citizen. His many civic activities included service as Mayor and Alderman of the City of Erwin, chairmanship of the Board of Stewards of the Methodist Church, president of the Kiwanis Club, Commander of the American Legion Post and the founding of the Industrial Commission for securing new industry for Unicoi County.

For 24 years he has been team doctor for Erwin High School athletic teams. He was a leader in establishing the Erwin hospital, now one of the better small hospitals in his part of the State. He has been chairman of the hospital Board of Control and Chief of Staff.

World War II called him to active duty in the army in 1942. He held the rank of Captain. A battalion surgeon with a Tank Destroyer Unit, he served throughout the North African campaign and was awarded the Silver Star for gallantry in action.

During his busy life, Dr. Monroe has given freely of his time to his county medical society. He has been president of the Washington-Carter-Unicoi County Society for two different terms, served as president of the John Sevier Chapter of the Tennessee Academy of General Practice, and served as president of the State GP organization.

He has worked diligently for TSMA as a member of the Editorial Board and Scientific Committee. He is Vice-Chairman of TSMA's Public Service Committee. He has been a member of the Committee on Postgraduate Education, a member of the Council, Chairman of the Labor Liaison Committee, served on the Committee on Veterans Affairs and has been a member of the House of Delegates for many years. He is presently a member of the Board of Trustees.

Dr. Monroe was married to Miss Mary Huntzinger of Copperhill, Tennessee. They have three children, Mrs. Wesley Shaver of Johnson City, and Carol Ann, a student at Erwin High School. A son, Kent, is a jet pilot with the U. S. Air Force. Dr. Monroe is widely known along the shores of Lake Watauga for his Kon-Tiki and many are those who have spent some restful hours on Watauga Lake in this floating device. His life is wrapped up in his devoted wife, Mary, his son, two daughters and two grandchildren, Kent II and Mary Catherine.

—J. E. BALLENTINE



(Continued from page 142)

often tall columnar cells secreting abundant amounts of mucus. The tumor cells outlined alveoli in many areas. The larger nodules of tumor disclosed central necrosis.

The heart weighed 260 Gm. and disclosed serous atrophy of the subserosal fat. Except for its small size it demonstrated only several small verrucous deposits along the margin of the mitral valve. These, microscopically, were composed of fibrinous material, similar to that described in tumor cases and other wasting diseases.

The pancreas weighed 90 Gm. The normal lobular architecture was preserved except in the midportion where a firm mass replaced the superior part of the gland.

Metastases were present in the lymph nodes along the splenic vessels. Microscopically, an adenocarcinoma of mucous producing duct cell type was arising from the main pancreatic duct, which distal to this was quite dilated. Widespread local invasion and lymphatic penetration were present.

The remainder of the examination disclosed metastases to adrenals and retroperitoneal lymph nodes.

#### Final Anatomical Diagnoses

1. Adenocarcinoma, body of pancreas, with metastases to lungs, lymph nodes, pleura, mediastinum, and adrenals.

2. Nonbacterial verrucous vegetations, mitral valve, heart.

#### Long-Term Anticoagulant Therapy in Coronary Disease. Ensor, Robert E. and Peters, Raymond H. J.A.M.A. 169:914, 1959.

The authors have taken the position, as have most authorities, that anticoagulant therapy in acute myocardial infarction is a reasonably well established form of therapy and have, therefore, gone to the next logical step which is to evaluate long-term anticoagulant therapy. Their experience, as well as that of other workers, which they have collected from the literature, would tend to show that patients given long-term treatment are favorably affected.

In this study, the series was begun approximately fifteen years ago and was carried through June 1956. The onset was taken at the time when long-term anticoagulant therapy was begun and covers a total of 521 cases, falling into three groups: (1) the long-term anticoagulant therapy for myocardial infarction of 268 patients and 140 patients classified as pseudo-control, these latter were the cases who discontinued therapy. This term, *pseudo-control*, was used rather than using these patients as a true control since it appeared that in this group even the short-term use of anticoagulants did seem to give some beneficial effects; (2) the second group consisted of those long-term therapy patients for coronary insufficiency of which there were 55 and a pseudo-

control group of 29; and (3) the third group were those with long-term therapy for angina, of which there were 23 and a pseudo-control of 6.

In their study of 5 and 10 year statistics, the mortality rates were as follows: (1) In the 5 year study, the mortality of the treated group, 21%; a true control group, as averaged from the literature, was 44.2%, and the pseudo-control group, 29.3%. (2) In the study of 10 year statistics, the mortality in the treated series was 24.6%, as compared with 67.6% in the true control group and 35.7% mortality in the pseudo-control group.

The authors agreed that there was a great disproportion between the 67.6% of the true control group and 35.7% ten year mortality of their pseudo-control group and could only draw the conclusion that even short-term anticoagulant therapy must have been of some benefit.

They admitted the numerous problems, including selection of cases and the natural course of coronary disease with all of its variables including environmental and emotional factors, making such a study somewhat difficult both to obtain and to interpret.

Their conclusions seem well warranted by their statistical study. (Abstracted for the Middle Tennessee Heart Association by Morse Kochtitzky, M.D., Nashville.)

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MARCH, 1959

## EDITORIAL

### ESOPHAGEAL VARICES

Bleeding from the gastrointestinal tract has always been a terrifying experience for the patient and a problem in therapy for the physician. In many cases there has been the tendency to ask for surgical assistance with the admonition that in bleeding from duodenal ulcers, the surgeon is often called too late. It is therefore not surprising that in another type of bleeding from the gastrointestinal tract, bleeding from esophageal varices, the surgical approach has played an important role in our thinking regarding this catastrophic event. The two types of bleeding, duodenal ulcer and esophageal varix, are dissimilar. Not only are they in different anatomic positions, but of more importance is the profound and rather unpredictable effect of the associated liver disease and liver dysfunction that makes the great difference in the management of the esophageal varix.

Welch and associates<sup>1</sup> suggested that a prophylactic portal shunt was indicated in patients with known varices associated with cirrhosis of the liver. Child,<sup>2</sup> in the Shattuck lecture, questioned the wisdom of such surgical intervention. A recent editorial stated, "All surgeons and physicians of experience can cite occasional patients with varices who have bled seriously, but under medical management have improved and have had no further hemorrhages for many years. Although this is not the rule, the fact that it occurs at all indicates that there must be some patients with varices that never have a major hemorrhage. How many is not known, and here is the crux of the problem. Until a careful study is done on a large population of cirrhotic patients in whom varices have been demonstrated and the subsequent course of the disease followed for many months and years, no sound answer to the problem of selection can be forthcoming."

Such a study has now been reported. Baker and associates<sup>1</sup> reported on 115 cirrhotics with demonstrable varices who had never bled. Their cases were followed for one to six years and during the period of followup, 33, or 28.6%, bled. It was interesting to note that 91% of the patients who bled did so during the first two years following the diagnosis of the varices. The relatively low frequency of bleeding resulted in a mortality from exsanguination which was lower than might have been expected. This was particularly true with respect to the first episode of bleeding, of which only 9.4% of the total number of patients had died. When one takes into account the deaths to be expected in the group whose course had been followed only one year, a mortality of slightly over 10% of the 115 patients is most important from the standpoint of evaluating the policy of prophylactic shunt surgery.

It should not be forgotten that many patients with varices do not die from bleeding, and some who bleed terminally with hepatic failure would not have had their lives prolonged or made more useful with any type of surgical procedure advocated. During the period of follow-up in this study, there were 74 deaths. Of these, 20 were due

to bleeding, 31 were due to hepatic failure and 23 were due to other causes. In other words, over 70% of cirrhotic patients with varices died of causes other than bleeding. This seems to refute the assumption that patients with varices are doomed to inevitable bleeding.

There are three factors which must be considered in evaluating surgery. These are: (1) mortality from surgery, (2) failure to prevent bleeding, and (3) neuronutritional disturbances following operation. It must not be forgotten that most of these patients are poor operative risks due to their associated hepatic dysfunction. Only one-half of these reported patients had good enough liver function tests to be considered acceptable for operation. As a matter of fact, 21 of the patients reported in this series, died within 40 weeks after the diagnosis of varices from hepatic failure. It is doubtful that a mortality rate as low as 10%, could have been reached if all patients included in this series had been operated on at the time varices were diagnosed. Various studies indicate that recurrent bleeding could be expected in 10 to 20% of cases and neuronutritional disturbances probably occur in 20% of cases. It would seem that the risk of operation and its complications outweigh the possible benefits to be expected in a disorder with a mortality of 10 to 15%.

It is refreshing to have available information about the natural history of esophageal varices before bleeding has occurred. We hope that a larger series of patients will be studied to determine the validity of Baker's concepts. In the meantime, caution in recommending prophylactic shunt therapy is certainly in order.

A. B. S.

#### References

1. Welch, C. Stuart, Kiley, John E., Reeve, Thomas S., Goodrich, Edward O., and Welch, Harold F.: Treatment of Bleeding from Portal Hypertension in Patients with Cirrhosis of the Liver, *New England J. Med.* 254:493, 1956.
2. Child, C. G.: The Shattuck Lecture: Portal Circulation, *New England J. Med.* 252:837, 1955.
3. Editorial: Prophylactic Porto-caval Shunts for Esophageal Varices, *New England J. Med.* 254:532, 1956.
4. Baker, Lyle A., Smith, Clifford, and Lieberman, Gerald: The Natural History of Esophageal Varices, *Am. J. Med.* 26:228, 1959.

#### "MEDICINE'S LEGAL NIGHTMARE"

This is the title of a series of articles to appear in the *Saturday Evening Post*, beginning with the April 11 issue. A prepublication issue has reached your Editor's hands from The Curtis Publishing Company. This first article seems to point to a sane and unbiased appraisal of one of medicine's major public problems, and we will await the future article or articles with interest.

The author makes many statements of interest, though undocumented. One enlightening item is that studies have shown that: the doctor who is *repeatedly* sued is one whose record of practice is not good; that the hospital which has a *high rate* of suits is one in which staff, nurses and administration are at odds; and that the typical patient who sues is of a "less-than-average intelligence rating, who expects the impossible from his doctor and often has a long record of lawsuits against department stores, street-car companies, neighbors, friends and relations." Furthermore, he says, the rise in malpractice suits has paralleled a nationwide rise in litigation and claims in the auto-accident and personal-injury fields, with ever higher and higher judgments by juries.

One of the obvious results of the increase in suits, and larger and larger judgments is that it has forced doctors to take out much higher protection with the attendant higher premiums. Of serious import is that certain insurance companies have stepped out of the malpractice insurance business entirely.

One New York actuary, expert in the field, estimates that the costs of malpractice claims,—judgments, out-of-court settlements, legal fees, etc.,—run from \$45,000,000 to \$50,000,000 annually. But it is pointed out that though this may be less than 1 per cent of the nation's medical bill, it is only part of the story. The author goes on to emphasize the additional costs the public is paying as a result of the situation. For the sake of protecting himself the physician requests more X-ray examinations, more laboratory tests and more consultations than in the past, thereby placing himself in as strong a position as possible in the event of a suit. In other words, he uses these aids not as professional judgment dictates, but rather as a



shield for use in court. Similarly, treatment may no longer be what is best for the patient, but rather what looks best in court. Spinal anesthesia has nearly vanished in some hospitals, says this author, because of big judgments given in recent years for accidents in this field.

It is of historical interest that the rules on malpractice were laid down in the English courts of centuries ago. The first recorded decision in 1374 is quoted in the article, as in the bungled treatment of a hand, which was "so impaired that it was maimed to his injury and damage." Though the surgeon escaped judgment on a legal point, the King's Bench laid down a rule that expressed the basic philosophy for judgments for almost 600 years, namely, "If the surgeon does so well as he can and employs all his diligence to the cure, it is not right that he should be held culpable." During the centuries this rule stood and malpractice suits were few. Now it is said that courts are increasingly awarding judgments to injured patients out of feeling sorry for the patient and not because of negligence by the doctor. The author of the article reminds us that the "rule of sympathy" takes us back 4000 years to the Babylonian Code of Hammurabi which might exact the loss of a doctor's hand or hands, or the life of his son, if he failed in an operation or if the nobleman's son died from an operation.

There is reason to believe that negligence, the technical point of importance in the past, is present in but a small proportion of malpractice suits today. Rather the suits are "nuisance" suits for monetary considerations on the plaintiff's part, as indicated by suits as often against the specialist, less likely to make mistakes in his chosen field, as against the general practitioner.

The author ends this article by considering the impetus given to suits by ill-advised remarks by one doctor about another of his confreres,—often the spark that sets off the train of litigation.

The reader may find this article in the *Saturday Evening Post* of interest, and we shall look to other promised ones with the hope they will be as unbiased as this one, and not provide just another field day at the medical profession's expense, as is the wont

of so many writers for the lay journals.

R.H.K.



## NATIONAL HOSPITAL WEEK

The American Medical Association has been invited by the American Hospital Association to aid it in promoting *National Hospital Week*, May 10 to 16. The theme to be publicized in the 1959 week is entitled, "More Roads to Recovery."

In this publicity campaign efforts will be directed to an explanation of the "roads," which are the better care, the skills and technics available and the many persons needed to carry them out. Thereby an effort will be made to apprise the public of the costs entailed and to make it evident that it is getting its money's worth. There is widespread belief among the laity, and admittedly some degree of it among certain of the medical profession, that hospital costs are greater than the services received.

One thing is apparent to all physicians, namely that the patient who cries loudly of the cost of medical care does not take the trouble to divorce the doctor's fee from the cost of hospital care. Often he "takes it out" on the doctor who offers a personal target rather than the impersonal hospital administration.—the employee at the paying window seen but once as the patient is leaving the hospital, happy that it is all over. Only later does he ruminate about the expense and then the doctor becomes the whipping boy. It will be advantageous to have the public acquainted with the costs of hospitalization for a clearer understanding of the costs of illness.

The doctor can not work without the hospital and the hospital exists for the care of patients, so there is a marriage of doctor and hospital and a partnership which can not be dissolved. Therefore in *Hospital Week* the doctor will be called upon to take part in the publicity on "More Roads to Recovery," and will probably hold much of the spotlight in the public forums, talks to community groups, and on the radio, TV, and newspaper programs or interviews.

The doctors therefore should and must be available to their hospital during *National Hospital Week* in this effort to win support for their local hospital and to the develop-

ment of an appreciation for the whole hospital team.

R.H.K.

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## Special Article

### Some Problems of Medical Insurance\*

John Davis Hughes, M.D., Memphis, Tenn.

*The reader will find summarized here the problems of health insurance as they relate to the patient, the doctor and the insurance companies. I wish it might be read by each physician in Tennessee.—Editor.*

Now that the vast majority of Americans have medical insurance on a private basis, the magnitude of their investment alone justifies a discussion in some detail of what steps can be taken to improve the quantity and quality of service which they receive. Common sense has convinced the public that it is wise to insure against illness, as well as against fire or losses of other kinds, and common sense likewise tells us, the insurers and the physicians, that we ought to and can improve medical insurance.

The role played by American insurance companies in developing on a nongovernmental basis this kind of protection, while taking a calculated financial risk of great scope, is truly in line with the best business traditions of our nation, and the great success in this field of insurance is witness to the sagacity and vision of your companies.

Beginning on a modest scale, as was necessary until sufficient actuarial experience had been gathered, the insurers have now in only a few short decades developed medical insurance into many types of policies available to meet various economic levels and needs, and yet I think we will agree that this type of insurance is only in its infancy, that it will be expanded at great speed by virtue of its soundness, and that continuing education of the public is bound to result in a conviction by the average man that he would be wise to take out a policy to protect himself and family against illness.

The physicians of this nation also deserve an accolade for helping to develop medical

insurance and for continuing to encourage the purchase of it from reputable companies.

No doubt you are as thoroughly familiar with the details of the "Tennessee Plan," as revised on July 1, 1958, which, in essence, is both a cash indemnity and a service plan, commonly called a "mixed" plan. Untold detailed work by many of the best physicians in our state over a period of years resulted in this splendid plan, which has been copied by many other state medical associations. I am not trying to sell you a policy in it; I only mention it to show that the Tennessee State Medical Association has long been cognizant of medical insurance needs, has gone on record repeatedly as favoring medical insurance, and continues to devote on a purely voluntary basis much time and thought to giving the citizens of this state the best possible insurance for the premium paid.

In fact, years ago the Tennessee State Medical Association began and still continues what is probably the most unique statewide system of medical care for indigents in the world, purely on a voluntary basis without one red cent of remuneration. In essence, years ago we guaranteed and still guarantee the finest medical and surgical care our members are capable of giving to any citizen of this state whose indigency is certified by a physician, and two other reputable parties. As long as the state or others provide him a bed and three meals a day, we are pledged to treat him for free throughout a lifetime, if necessary, regardless of the number of operations, if any, he needs. That is what we think of insuring our fellow citizens in need.

The insurance companies and the physicians are in a sense partners in originating, developing, and seeking to administer fairly this extremely important form of insurance. Partners always work together most effectively when they confer frequently and frankly, and come to understand each other and their common problems better. As one of your partners I welcome this opportunity to discuss some problems in medical insurance of great importance to all.

Three parties are involved in this type of protection—the patient, the doctor, and the insurance company. Each has his rights and around each certain difficulties were bound

\*Read before the 65th Annual Convention of the Insurers of Tennessee, October 21, 1958, Memphis, Tenn.



to develop. Yet none of these is insoluble. Let us discuss each in order.

Perhaps the patient has posed the greatest number of problems. All too often he has not really read his policy in detail and contends that he deserves certain benefits which the contract specifically excludes. I always insist on the patient allowing me to read his entire policy whenever he complains of an injustice by an insurance company and almost invariably I find that his position was ill taken and politely point this out to him. This consumes time but I feel it is a physician's obligation to help his patient in this way and certainly it is far better than to blandly tell the complainant to take it up with the insurance company.

A second problem posed by an occasional patient is the deliberate withholding of information from the insurance company when the policy is first taken out. Then when the insured finds that the insurer will not pay for an operation for a condition which existed prior to the contract, anger results. For example, a lady requested that I examine her carefully because of indigestion. In the course of taking the history I elicited the fact that several physicians over a period of the previous eight years had x-rayed her gall bladder and each had found stones. I found them also and referred her to an outstanding local surgeon who removed them uneventfully. Several weeks after the operation she stormed into my office insisting that I sign an insurance claim for the operation, stating amid unlady-like words that the surgeon refused to do so. She finally admitted that she had taken out the policy only four months prior to the operation and had not mentioned that she was known to have gall stones. I also refused to sign her claim blank and to this day she vents her spleen to friends and associates concerning how mean the surgeon and I are. Fortunately this type of chiseler is rare. Yet I wonder how often unscrupulous individuals collect, after withholding important medical information from the insurer, and even from the doctor.

A third patient problem revolves around going to the hospital for a rest. It surprises me how many patients think because they have medical insurance they can lounge around a hospital for a week or two. I al-

ways inform such patients that I seriously question whether their insurance will pay for such hospitalization. In fact I warn them several times that I am pretty sure it will not. This stops most of them short of the admitting office.

Along these lines, what of the insured patient who enters the hospital for legitimate reasons but declines to leave when the subject of discharge is brought up by the doctor? While this is infrequent, nevertheless, it can be very costly. One cannot throw such a patient out of the hospital. A reputable physician will find ways, however, to achieve the discharge of such a patient in fairly short order, unless he adopts the easy way out and does not contest the patient's desire to stay longer. I usually wait no longer than one day and then sit down politely beside the patient and point out how expensive the premium would be if lots of policyholders stayed in the hospital a few days each too long. This often works. If not, I then add that I shall have difficulty in vouching for the necessity of staying longer. This usually does it and though it does not endear the physician to the patient, at least it maintains his self respect and integrity.

Another problem of real magnitude is the ambulatory patient who seeks to enter the hospital to have tests done because the policy pays for them there but not in the physician's office. Frankly it has always amazed me that any insurance company would insist on hospitalization as a prerequisite for payment for x-rays and laboratory procedure when obviously the company will also have to pay the hospital the amount stipulated for room and board. Moreover, it often takes more days in a hospital to complete tests than it does in a doctor's office.

Personally, I think this is poor business on the part of insurance companies and a direct inference that the physician cannot be trusted to do a minimum number of procedures in his office. For that matter what is to keep the doctor from ordering a multitude of tests in the hospital, to be paid for by the company?

Patients and insurance companies alike place an inordinate emphasis on tests, and are willing to pay for them but fail to ap-



preciate the value of the amount of time spent by the physician. It has often been said in medical circles that the finest test of a patient is the combination of a history of the illness and a physical examination conducted by a well educated and experienced mind.

A common insurance problem of patients is that they failed to buy adequate protection in advance. If I insure my house for \$2,000 do I have a right to complain because, when it burns down, my insurer gives me only \$2000? Of course not. Yet many fairly well-to-do patients complain that their medical insurance pays only a part of the room and board, only a few dollars for drugs, *et cetera*. Under these circumstances it is wise for the physician, in order to maintain the good name of medical insurance, to quietly point out that the company is not culpable for paying only what the contract calls for.

Rarely one encounters the greedy patient who, when about to be discharged from the hospital, requests the physician to give him large supplies of numerous drugs, especially if they are expensive, on the grounds that his insurance policy will pay for them. While it is perfectly legitimate for the physician to order the essential drugs needed, but in reasonable amounts, it is certainly collusion for him to acquiesce in the demands of the greedy patient.

Even more rarely one runs into the patient who insists that numerous unnecessary x-rays and tests be performed on him while in the hospital because his policy will pay for them. The wise physician simply informs the patient that the tests are not needed and that certainly exposure to avoidable radiation is unwarranted. Firmness on the part of the physician is all that is needed.

At this point I wish to make it clear that I have been discussing problems revolving around a small minority of policyholders. I do not wish to leave the impression that I consider John Q. Public to be basically dishonest. On the contrary, the average American is perfectly reliable and trustworthy and expects from his insurers only what his contract calls for.

Since time precludes me covering all insurance problems of patients, I must push

on to a consideration of the doctors themselves.

To begin with, I feel that the average doctor can be trusted implicitly not only with life and limb but also with his fees. There are no more exceptions in our ranks to this statement, and possibly less, than any group of individuals I can think of. The common conception that all physicians are rich men is a fallacy.

In a confidential survey of well over 500 members of the Memphis and Shelby County Medical Society not long ago, it was found that the average doctor had an annual income of \$16,000, that he donated in cash to church and charities over one-tenth of that sum, that he worked a perfectly preposterous number of hours, and the membership still treated enough charity patients for free to save the City of Memphis over \$3,000,000 annually, not to mention over 200 of the members serving on the faculty of the College of Medicine of the University of Tennessee year after year without any pay whatsoever. Gentlemen, men of this caliber are worthy of the trust that has been put in them by hundreds of thousands of patients.

We do have, of course, a few physicians who raise problems. To begin with, there are some who are far too tardy in completing the insurance blank and forwarding it to the company. Such delays create additional work and expense for the company and antagonize patient and company alike.

At times some doctors are careless in filling out the blank and rarely they leave off important information. When the patient is admitted to the hospital primarily for a chronic anxiety state but at the same time has the sniffles, is it honest to list acute respiratory infection as the primary diagnosis, for insurance reasons, and chronic anxiety state second? Of course not. Yet it is done, and it costs the insurers.

It is easy for an unscrupulous physician to classify a case as an emergency. It is often difficult to disprove his contention that it was. For this reason I have been very happy to notice of late that some companies are including on the claim blank a question as to whether the patient was or was not ambulatory on admission. This is

excellent, and will weed out some false claims.

In regard to insurance fees paid to the doctor, they are usually stipulated in the contract. For surgeons and surgical specialties, and for obstetrics these fees are, as a rule, reasonable. But for medical care they are all too often absurdly low, far less than a plumber or a television repairman would accept for a visit. If the fee is in the contract, there is no problem; the insurance company pays that fee and the physician reserves the right to make an additional charge to the patient in line with the services rendered, the latter being purely a problem between physician and patient.

The real spot where the insurance company and the doctor get into difficulty at times is in the type of insurance where the insuror has guaranteed in advance to the insured that medical or surgical bills will be paid in full. Under these circumstances the insurance company may consider the surgeon's fee, for example, too high, and sometimes it is. If they cannot settle the matter between them there has been a tendency in the past to throw the problem in the lap of our medical society's Grievance Committee. This was easy for the insurance company but hard for the surgeon, as it is a stigma, which few doctors desire, to be ordered to appear before such a committee. This consumes much time for all concerned.

After thorough and careful review of this sort of case, the Executive Committee of the Memphis and Shelby County Medical Society voted unanimously that no committee of the society could adjudicate between one of its members and any insurance company the question of a fee unless the patient himself complained.

There were several reasons for this. First, it was felt that the fee of a member was his own business and that the medical society should not place itself in the position of dictating fees. Secondly, it was recognized that very few doctors would deliberately charge above average fees, which are well known to fellow society members, for fear of incurring the society's disapproval and experiencing a decrease in referrals of patients from society members. Thirdly, the Executive Committee felt that the insurance adjuster was not defenseless under

these circumstances and should retain his share of the responsibility for adjusting such differences of thought concerning a fee. Finally, our committee visualized that it could well be swamped by numerous complaints from insurance companies every time the company differed with a doctor over his charges, and that in essence our Grievance Committee could well be put into a large scale position of serving as a collection agency for companies against physicians, or physicians against companies.

Our Grievance Committee is certainly continually available for referral of physicians who are guilty of malpractice, unethical conduct, practices in general detrimental to the standards of the medical profession, or physicians felt to have raided insurance companies systematically over a period of time.

Our feeling is that if a physician hands in a bill to an insurance company that is obviously far out of line, the insurance adjuster should tell him so and refuse to pay it. If the physician then appeals to our society to help him collect it from the insurance company, he will find that we cannot put ourselves in the position of collecting agency for him either. When one considers that there are over 700 doctors in our local medical society, and that the great majority of patients have one or more medical insurance policies, and that thousands of such patients are seen daily by members of our society, common sense should convince us that the above described action of our Executive Committee was well justified.

While still on the subject of high fees, all of us agree, I am sure, that excessive fees would inevitably run up the cost of prepaid medical insurance and soon place it beyond the financial reach of many. This would not only be grossly unjust, but it would inevitably serve as a cogent reason for the federal government to push even harder for an increasing role in this field of insurance. This would be another step on the road of socialism down which our nation has already traveled too far and clearly it would be bad for insurors, the insured, and the physicians themselves. Medical societies across the country, including ours, have hammered away on this theme to their



members seeking a consistent pattern of fair fees for services rendered.

Another insurance problem revolving around physicians is that of performing unnecessary surgery. I would be the first to agree that occasionally one finds a mercenary doctor who is equally quick with knife and bill. He performs what we refer to as acute remunerative surgery. This type is a danger to the public, a curse to his profession, and a great liability to insurers. In our larger hospitals this type seldom retains operating room privileges for long as, unknown to most laymen, hospital staffs have special committees which keep accurate records month by month of every surgeon operating. They calculate such factors as his accuracy of diagnosis, his operative technique, his incidence of wound infections, and especially his morbidity and mortality rates. All organs removed must be examined by the pathologist. If too many normal organs are removed, or if he fails to measure up to standard in regard to the factors discussed above, he is kicked off of the staff and can no longer operate in that hospital. This is medical justice indeed. However, there is nothing to prevent him opening a hospital of his own, as long as he has not lost his license by malpractice or otherwise.

Some doctors cost insurance companies great sums of money by falsely classifying certain patients as totally or partially disabled. Insurers should get together and set up a plan for calling automatically for expert medical re-evaluation of such cases when certain established average periods of disability for various diseases, operations and injuries have been exceeded.

There are numerous other rarer problems in this field pertaining to doctors. Notable are bearing false witness in court; falsifying insurance blanks; deliberately prolonging hospitalization for medical profit; increasing unnecessarily follow up visits; ordering unneeded and expensive appliances; and many more.

We have now considered the faults of the minority of patients and the minority of physicians in these matters and it is time to analyze the faults of the insurance companies, again emphasizing the word minority.

I trust you have not yet made an irrevocable diagnosis of me, to wit, that I am only another fault finder! Believe me, such is not the case. I have already paid high tribute to the integrity of the average policyholder, and to the average physician, and I can truthfully state that the vast majority of insurance companies are strictly honest and actuated by high motives.

However, I did not come here bearing only praise, for what will we accomplish constructively by mutual back-patting and oratorical paeans over our respective contributions to developments in this important field of insurance? Very little except smug satisfaction, which is not conducive to further progress. This is a perfect time for us to engage in absolute frankness, which is not always pleasant.

A good place to begin is with the claim blank itself. Thank Heavens, it is gradually being simplified! Some companies still use blanks containing unnecessary questions which wiser companies, interested in speedier though still accurate service, have long since deleted. The old classic one is "Has this patient any constitutional disease or disability?" The common cold and cancer both qualify for "yes." So does an ingrown toe nail, for it is not a disability? Such long blanks should be simplified and, in fact, most physicians have agreed that it would be wise for all concerned if insurers got together on a national level and agreed on a standard form for the patient and the physician to fill out.

Still on the subject of the claim blank, few doctors feel that it is justifiable to charge a fee for filling it out. I never have. Yet I have thought many times of billing the insurance company for time consumed in having to recite all details of each visit of the patient in previous years, all diagnoses, severity, treatment, and results, not to mention x-ray findings. Companies which require this much information should pay a fair fee; of that I am convinced.

While speaking of insurance forms, only rarely does a company writing a doctor for information concerning a patient applying for medical insurance include a fee, or suggest one. Far from it. Most companies state that the physician will be doing his patient a favor in helping him secure the



policy by answering the questions listed below. Invariably these questions call for all information you have on the patient. I feel as do virtually 100% of doctors that in filling out this sort of blank we are also doing the insurance company quite a favor by putting it in a solid position to sell the policy and that our services are worth remuneration if the company intends to make a profit on them by selling a policy. It is thought unlikely that the company would sell the policy without any thought of profit!

While speaking of profit, the average physician views the enormous expansion of insurance companies as indicative of the fact that these growing companies are well managed, are selling an important product which will offer protection to many individuals, and we heartily approve of this as not only the fulfillment of a need to the public but also a demonstration of the healthy spirit of private enterprise which has been the economic foundation of this nation. Yet we often wonder, especially when adjusters tell us that our fees are too high, whether insurance companies are not setting premiums too high. One can hardly read a week's mail without noticing on several days that one is encouraged to purchase stock now in this or that insurance company because it is making millions of dollars of profit annually. I am in dead earnest at this point, especially. Either many insurance premiums are too high, and should be lowered, or else adjusters should remove the mote from their own eyes before criticizing medical and surgical fees.

In a recent year, the American public paid about 8 billion dollars for all medical and surgical bills, 5 billion for alcoholic beverages, 3 billion for tobacco, and 3 billion for veterinary care of their pets, not to mention the billions for television sets and luxuries. Measured against this background the annual medical cost of the nation is anything but excessive. Obviously hospital bills are not included in these figures as they do not go to doctors.

I shall belabor this point no longer. I merely wished to show how incongruous is the contention of some insurers that doctors are pricing medical insurance out of business. The massive growth of it be-

speaks the opposite, or as the lawyers state, *res ipsa loquitur*.

Medicare has concluded that a complete and detailed history and physical examination by a physician is worth \$25.00. Many insurance companies object to this. While I am no advocate of Medicare, which socializes insurance and medicine and the public equally, to the detriment of all, I must state that this fee was arrived at after an enormous amount of study.

In regard to the daily fee for medical care of, let's say, three dollars, or five dollars, offered by most insurers—often it is all that the doctor deserves. Sometimes it requires only a very few minutes a day and little professional skill to treat, for example, a moderately severe case of bronchitis. But consider the same patient, should he also have marked psychoneurosis with a multitude of symptoms referable to that, with which he confronts the physician incessantly. Obviously he will require a vast increase in time per day, often as much as an hour. Should the fee still be three or five dollars a day? Of course not. Yet insurers make no allowance for variation in complexity of medical cases. This cries out for rectification, but only if complete insurance is concerned. Otherwise the physician sends the patient a bill commensurate with services rendered, reduced if the patient's financial condition is substandard.

The truth of the matter is that few physicians have the time or the motivation to prowl through the patient's insurance policies, unless specifically requested by the patient. The vast majority treat the patient to the best of their ability regardless of whether he is or is not insured. Often when there is no insurance and the patient is hard up, no bill whatsoever or only a token bill is sent. Physicians have done this through the centuries. Small wonder they are sensitive to criticism by companies which have not been known to donate their services repeatedly and on a large scale free of charge.

Though many here today may disagree with some of the things I have said, I think we will agree unanimously that I have been frank. You have courteously permitted me, the President of a truly great medical society, to analyze problems in medical insurance as I see them.

I did not come here just to point out faults, important as it is to recognize and face up to them. I also came with a few constructive ideas.

To begin with, there should be extremely close liaison between insurance companies and physicians so that each can recognize the problems of the other, and help solve them. As I told a recent combined meeting of the Memphis Bar Association and the Memphis and Shelby County Medical Society, such meetings are gradually teaching both professions that the word peculiar should be applied not to members of the opposite groups but to their problems.

While I have no real authority to commit to action the Memphis and Shelby County Medical society, I do feel sincerely that it would welcome a meeting between parallel committees of the local insurance group and our society with a view in mind of establishing better rapport, exchanging speakers, and gradually engaging in studies of ways and means to prevent or circumvent the various problems in medical insurance I have discussed here today.

Years ago when there were misunderstandings frequently between our medical society and the Memphis newspapers, the officials of both sides got together at a small stag dinner and soon found that not a person in that room had horns! This was the beginning of a fine relationship from which evolved a press medical code so fair and so thorough that it has been adopted virtually *in toto* in many places in this country. We still meet annually with the newspaper people, but now like intimate old friends who thrash out problems quickly and without rancor.

Likewise our medical society and the local bar association met cautiously a few years ago to see if doctors could not cooperate more with lawyers, and if attorneys might not learn to quit insulting and trying to humiliate doctors in court. Believe me it was not a warm romance at first between these groups! But as the years have gone by both groups turn out annually in great numbers for the combined meeting and even rock with laughter now as one side puts on a skit caricaturing the other. Out of this, as one would deduce, has come a tremendous increase in courtesy and cooperation

between the legal and medical professions locally, as well as many fine friendships.

I visualize that insurers and physicians in this great city could quite easily do the same, and as mutual respect and understanding grow, few indeed would be the problems which we could not then solve amicably and justly.

Again let me thank you for the honor of appearing before your distinguished group.

## DEATHS

**Dr. Arthur Reginal Kempf**, 76, Springfield, died on March 3rd at the Jesse Jones Hospital, as the result of a heart attack.

**Dr. J. B. Swafford**, 67, Chattanooga, died March 8th in a local hospital.

**Dr. Warren G. Alford**, 69, Memphis, died March 1st at Kennedy Veterans Hospital.

**Dr. Samuel Bryan**, Memphis, died on March 16th.

**Dr. Walter Roark**, Bethpage, died February 19th.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Memphis-Shelby County Medical Society

The Society held its regular monthly meeting on February 3rd in the auditorium of the Institute of Pathology. Dr. J. Warren Kyle, president of the Memphis Heart Association was introduced. Following brief remarks, Dr. Kyle introduced Dr. John Conway who presented the speaker for the evening, Dr. Jules Hirsch of the Rockefeller Institute. Dr. Hirsch addressed members of the society on the subject, "Dietary Effects on Serum Lipids in Man." The address was followed by a lengthy question and answer period.

### Robertson County Medical Society

The Society conducted its regular monthly meeting in the Jesse Jones Hospital on the evening of March 16th. In addition to the scientific program, a resolution was adopted by the society in memory of Dr. A. R. Kempf, stating the deep regret in his sudden passing.

### Roane County Medical Society

The Society held its monthly meeting in the Oak Ridge Hospital on March 31st. The speaker was Dr. James C. Gardner, Nash-

ville, president of the Tennessee State Medical Association. Dr. Gardner discussed some of the current economic problems facing organized medicine.

### **Chattanooga-Hamilton County Medical Society**

The Society met on February 3rd in the Interstate Building. The scientific program consisted of the following: "Functions of the Grievance Committee," by Dr. Thomas F. Frist, Nashville; "Chemopallidectomy" by Dr. Walter E. Boehm; and a case report by Dr. Robert G. Demos.

On March 3rd at the meeting of the Society, a paper entitled, "A New Cause of Heart Disease," was presented by Dr. Maurice S. Rawlings. A paper entitled, "Purulent Infections of the Salivary Glands," was presented by Dr. Rudolph M. Landry. The case report was given by Dr. Cecil E. Newell.

### **Knoxville Academy of Medicine**

The Society held its monthly meeting on March 10th in the Knoxville Academy of Medicine building. The speaker was Dr. I. Frank Tullis, Memphis. His subject was, "Clinical Recognition of Dissecting Aneurysm."

### **Consolidated Medical Assembly**

The Society met at the New Southern Hotel for its regular monthly meeting on the evening of March 3rd. Dr. Alvin J. Ingram, Dr. Jack Greenfield and Dr. Robert A. Davison, all of Memphis, participated in the scientific program. The program was presented as a part of the symposium by the Postgraduate Committee of the Tennessee State Medical Association. The subject was "Athletic Injuries and Common Fractures."

### **Nashville Academy of Medicine and Davidson County Medical Society**

The Society held its regular monthly meeting on the evening of March 10th at the Hermitage Hotel. Following a dinner, the scientific program was presented by Dr. Howard Skipper, director of the Southern Research Institute, Birmingham, Alabama. His subject was, "New Developments in Cancer Treatment: Drug Approach."

### **Greene County Medical Society**

Dr. Ben Hall, Johnson City, was the guest speaker at the March meeting of the Greene County Medical Society held in Greeneville. The topic of Dr. Hall's discussion was, "The Use of Radioisotopes in Diagnosis and Treatment of Thyroid Diseases."

### **Anderson-Campbell County Medical Society**

The Society had a dinner meeting on February 26th at the Russell Hotel, where members of the society heard a presentation by Dr. Charles Sienknecht of Knoxville, on the subject, "Common Laboratory Procedures and Their Use and Interpretation."

### **AMA Field Representative Visits Tennessee**

Mr. Charles Johnson, one of the new field secretaries of the American Medical Association has visited the executive office of TSMA, officials of the association and leaders throughout the state.

The Field Service Division of the AMA is one of the newly established divisions to further aid organized medicine on a grass roots level. Following is a description of the work that will be performed by the Field Service Division.

#### **1. PURPOSE**

The Division of Field Service shall serve as an operation and liaison arm of the AMA with the state and local medical societies in specified activities. It shall serve in conjunction with, in support of, and as a service to all divisions and departments of AMA in the field as may be agreed upon by the respective directors or as may be directed by AMA.

#### **2. OBJECTIVES**

- (a) To further develop the spirit of teamwork between AMA and the state societies.
- (b) To help create among AMA members a recognition of their identity of interest with the AMA.
- (c) To assist in locating, cultivating, and developing a better understanding and closer working relationship with approximate lay organizations.

#### **3. FUNCTIONS**

- (a) To gain and maintain the complete



confidence, understanding, and co-operation of the executive secretary, principal officers, and governing bodies of each state society.

- (b) To detect adverse criticism of the AMA, and transmit the information to headquarters.
- (c) To locate in organized medicine any points of friction, schisms, conflicts, splinter-groups, and attempt to catalyze the correction and healing of such situations.
- (d) To interpret and promote the services of all units of AMA to constituent societies.
- (e) To develop a constructive, cooperative working relationship with the members of Congress and their supporters and friends.
- (f) To facilitate the utilization by lay organizations of AMA resources.
- (g) To promote such other special activities as directed by the AMA.

### Smith County Medical Society Historical Notes

*Dr. R. E. Key of Carthage, anticipating an interest in the program of the Smith County Medical Society of a half a century ago, sent it to us. A photograph of the program appears below, as well as the verbatim reproduction of the program contained within its covers.*

*Since our interest was aroused in the historical background of the Smith County Medical Society and medical practice in its early days, there was further correspondence with Dr. Key, who suggested that Dr. Thayer Wilson of Carthage also might add more about the early days of Smith County medicine. His letters have provided a story somewhat as follows:*

#### PROGRAM

January 1st

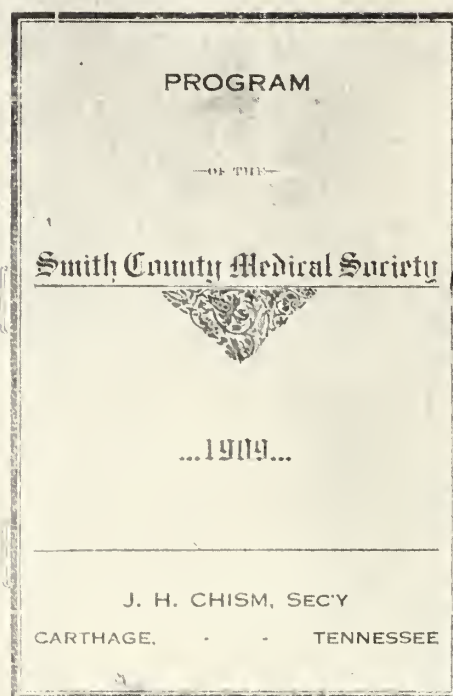
- |                                   |                 |
|-----------------------------------|-----------------|
| 1. Jaundice and its Significance  | I. H. Beasley   |
| Discussion                        | M. N. Alexander |
| 2. Acute Sarprenia and Septicemia | J. S. Campbell  |
| Discussion                        | C. H. Donoho    |
| 3. Lobar Pneumonia                | R. E. Key       |
| Discussion                        | Frank Swope     |

February 5th

- |                                      |               |
|--------------------------------------|---------------|
| 1. Neurasthenia                      | B. J. High    |
| Discussion                           | J. G. Bridges |
| 2. Urinary Infections in Practice of |               |

—Editor.

- |  |                 |
|--|-----------------|
| Obstetrics   | M. O. Davis     |
| Discussion   | J. J. Beasley   |
| 3. Pelvic Inflammatory Diseases                          | J. H. Chism     |
| Discussion   | R. W. King      |
| March 5th  |                 |
| 1. Malarial  | C. D. Robins    |
| Discussion   | I. H. Beasley   |
| 2. Fractures of Ulna and Radius                          | Frank Swope     |
| Discussion   | R. E. Key       |
| 3. Tuberculosis of Hip Joint                             | R. W. King      |
| Discussion   | J. H. Chism     |
| April 2nd  |                 |
| 1. Renal Calculi   | M. N. Alexander |
| Discussion   | B. J. High      |
| 2. Appendicitis  | Floyd Boze      |
| Discussion   | J. S. Campbell  |
| 3. Gonorrhea   | J. G. Bridges   |
| Discussion   | C. D. Robins    |
| May 7th  |                 |
| 1. Gaul Stones   | I. H. Beasley   |
| Discussion   | Ed Fisher       |
| 2. Intestinal Obstruction                                | W. M. Crockett  |
| Discussion   | R. E. Key       |
| 3. Management Normal Labor                               | Frank Swope     |
| Discussion   | I. H. Beasley   |
| June 4th   |                 |
| 1. Intracapsula and Extracapsular Fractures of Hip Joint | J. N. Bridges   |
| Discussion   | Ed Gross        |
| 2. Acute Miliary Tuberculosis                            | B. J. High      |
| Discussion   | R. E. Johnson   |
| 3. Arsepsis  | E. W. Jenkins   |
| Discussion   | M. N. Nichols   |



## July 2nd

1. Acute and Chronic Cystitis . . . . . J. J. Beasley  
Discussion . . . . . R. E. Key
2. Concussion of Brain and Differentiate  
from Compression . . . . . J. H. Chism  
Discussion . . . . . B. J. High
3. Ulcer of Stomach and Differentiate  
from Cancer . . . . . J. O. Davis  
Discussion . . . . . R. W. King

## August 6th

1. Vomiting of Pregnancy . . . . . Frank Swope  
Discussion . . . . . C. H. Donoho
2. Dislocations of head of Humerus . . . . . I. H. Beasley  
Discussion . . . . . C. D. Robins
3. Chlorosis . . . . . E. H. Knight  
Discussion . . . . . James Bridges

## September 3rd

1. Puerperal Eclampsia . . . . . M. N. Alexander  
Discussion . . . . . G. W. Cornwell
2. Chronic Interstitial Nephritis . . . . . R. W. King  
Discussion . . . . . R. E. Key
3. Displacement of Uterus . . . . . C. D. Robins  
Discussion . . . . . A. H. King

## October 1st

1. Blood from Uteries and  
its Significance . . . . . B. J. High  
Discussion . . . . . Floyd Boze
2. Differentite between Remittent  
Malarial and Typhoid Fever  
and Treatment . . . . . S. C. Bridgewater  
Discussion . . . . . R. W. Jenkins
3. Colles Fracture . . . . . E. S. McKinny  
Discussion . . . . . G. M. Herrod

## November 5th

1. Membranous Croup (Diphtheritic)  
and differentiate from similar  
lesions . . . . . J. J. Beasley  
Discussion . . . . . Frank Swope
2. Cholera Infantum . . . . . James L. Alexander  
Discussion . . . . . S. C. Bridgewater
3. Placenta Previu . . . . . M. N. Alexander  
Discussion . . . . . J. S. Campbell
4. Discuss Orgin, Preperatims,  
Physiological Thereputic Actions of  
Opium . . . . . J. B. Bridges  
Discussion . . . . . W. M. Crockett

## December 3rd

1. Management of Pueperium . . . . . R. E. Key  
Discussion . . . . . Ed Fisher
2. Potts Fracture . . . . . Frank Hargis  
Discussion . . . . . Floyd Boze
3. Erysipelas . . . . . M. O. Davis  
Discussion . . . . . E. S. McKinney

Election of officers for year 1910.

J. H. Chism, Secretary

Though the date of the founding of the Smith County Medical Society is not known for certain, Dr. Wilson has personally inspected a program of the Society dated 1866. This contained a paper on "Cancer of the Uterine Cervix" which was discussed by a surgeon just returned from the Confederate

Army, who recommended "free use of a large stick of lunar caustic" in treatment.

A Dr. W. E. Whitley of Gordonsville was the first doctor with an M.D. degree to practice in Smith County, the degree having been awarded after two courses of lectures in Nashville of four months each, his favorite professor being Dr. Menees, who began to practice in Nashville when it was a town of less than 10,000 population. Dr. Johnny Mason of Lancaster is said to have been the first doctor to insist on vaccination against typhoid fever in his community. Medical tradition has it that the first successful amputation at the hip joint was performed near Carthage during the War Between the States by a Union Army surgeon, Dr. Wyeth, later of Philadelphia, at the time of the occupation of Carthage by Union forces. The oldest active physician in the early part of this century who practiced in Smith County without a degree, but who had merely "read medicine," was Dr. Ben High, of Elmwood. He served as secretary to the Smith County Society for over 40 years.

Veteran members of the Society are Isham H. Beasley, M.D., of Gallatin; Ed. D. Cross, M.D., Chestnut Mound, and R. E. Key, M.D., of Carthage.

In searching through the files of old newspapers published in Carthage, Dr. Wilson has found for us interesting "advertising" cards of physicians, as follow:

### *The Republican*

Jan. 7, 1842

Medical Card

Drs. Robinson & Clay,

Take this method of returning their thanks to their old friends and the public generally, and hope by an assiduous attention to their profession in all its various branches, to merit a continuance of the liberal patronage heretofore extended to them. The senior partner has and will continue to pay particular attention to Obstetrics and the diseases of Women & Children.

Office, on Main Street—brick house formerly occupied by M. W. Sloan, as a store.

January 1, 1842—1—6tn

Dr. King

Still remains at his old stand and will be happy to attend to those who may favor him with their patronage. He will when possible be at home twice every day so that a call left in his absence will be attended to in a few hours.

Carthage, January 1st, 1842—1—tf

### Doctor J. S. McClain

Having permanently located at his father's, seven miles south of Carthage, offers his professional services to his old friends and the public generally. His attention shall be prompt and strict to the ones who may call upon him, and no pains will be spared to give general satisfaction.

January 1st, 1842—1—tf

### *The Republican*

Feb. 2, 1844

A Card

Dr. P. Clay

Having located at McClelland's Store, on Defeated Creek, respectfully tenders his professional services to the citizens of the vicinity and to the public generally; and hopes from his experiences and successful treatment of Diseases incident to this section of the country, to merit a liberal portion of public patronage. His office will be kept in the counting-room of S. McClelland, where he may generally be found when not professionally absent.

January 10, 1844

Dr. N. B. Pillow,

Having permanently located in Carthage respectfully tenders his services to the citizens of the town and adjacent country, in the practice of Medicine in all its branches. He has paid particular attention to the nature and treatment of Surgical diseases, as he is anxious to engage in the practice of that branch of the profession. He is now prepared to operate for the relief of Strabismus or Cross eyes and Club foot; operations of comparatively modern practice. His dwelling and office are the houses formerly occupied by Dr. King. He will generally be found at his office during the day and at his dwelling at night.

June 16, 1843—24—tf

### *Carthage Mirror*

Oct. 4, 1883

Dr. J. S. Cornwell

Physician & Surgeon

Office adjoining residence corner of Main Street & Fite Avenue Carthage Tennessee

To be found at all hours when not professionally engaged.

### *The Record*

Oct. 21, 1885

Found in the Chestnut Mound News

Born to Bransford Poole and wife, on the 11th inst., two boys, weighing 7½ pounds each. So said by Dr. E. S. McKinney, who was the attending physician.

### *The Record*

Nov. 4, 1885

Physician

H. W. Blair, M.D.

Physician & Surgeon

office, formerly occupied by Dr. King  
Main St., Carthage, Tennessee

### *Carthage Times*

July 20, 1900

Elum M. Russell, M.D.

Physician & Surgeon

Carthage, Tenn.

Office on Main Street Opposite the Christian Church

## NATIONAL NEWS

### The Month in Washington

(From the AMA Washington Office)

If every member of Congress had his way, there would be anywhere from 10 to 15 institutes at the National Institutes of Health in Bethesda. The total now stands at seven, and there is a good possibility that an eighth will be in operation this year or next.

Fifty-eight Senators of both parties joined in sponsoring a resolution that would do three things: (1) establish a National Institute for International Medical Research, (2) create a National Advisory Council for International Medical Research, and (3) authorize \$50 million annually for international research programs. Senator Lister Hill (D., Ala.) a leader in health legislation and health welfare appropriations, has taken the lead in pushing this bill.

Four days of hearings brought almost unanimous support of the resolution, only two witnesses complaining it did not go far enough. The administration asked for three postponements to testify. This gave rise to speculation that it either may object on budgetary grounds or dissatisfaction over location of the institute.

Dr. Gunnar Gundersen, American Medical Association president, pledged full support and assistance of the AMA for the project. "... we believe that the promotion of international health through research is one of the best means of promoting international cooperation and understanding." He noted "a growing recognition that medicine, with its resources and influence fully mobilized, can perhaps do more for world peace than the billions of dollars being poured into armaments."



The AMA president made several suggestions for the committee's consideration; including (1) that the World Medical Association be included among the international groups with which cooperation is sought; (2) that due care be taken not to "rob" other countries of experts in medical care and scientific research through support grants not geared to salary differentials; (3) that the program should be primarily one of research itself rather than construction of research facilities; and (4) that the greatest care be exercised in setting up the research grants and research programs to avoid overlapping or duplicating.

#### NOTES:

The Forand Bill for hospitalization and surgical services of retired social security recipients has been introduced in only slightly revised form. Its number is H.R. 4700. One change of interest is permitting surgical services to be performed by other than board-certified surgeons. The author says the program will be financed by increasing social security taxes (above increases already scheduled) by one-fourth of 1% for both employer and employee and three-eighths of 1% for the self-employed, both starting in 1960.

More significant than even the introduction of the bill was the statement Mr. Forand filed in the Congressional Record the same day. It was moderate in tone and seemed to be asking the support of all groups. He noted, for instance, that some of his strongest backers have questioned the inclusion at this time of surgical services.

This, he commented, should be weighed by the committee when it takes up the bill.

On hearings, little is known. Neither the House Leadership nor chairman Wilbur Mills of Ways and Means Committee have given any indication when hearings would be held.

While some committees of Congress have been moving rapidly ahead on health legislation, others like the House Interstate Committee only recently got around to organizing its health subcommittee. It was given a new name: Health and Safety Subcommittee, when Rep. Kenneth Roberts (D., Ala.) who headed a special highway safety committee was tapped for the new post. Its area of interest includes public and quaran-

tine, food and drugs, hospital construction, highway and air traffic safety, and air pollution. Mr. Roberts is a lawyer by profession and is now serving his fifth term.

## MEDICAL NEWS IN TENNESSEE

### Memphis Thoracic Society

The Memphis Thoracic Society met in regular session on the fourth Wednesday in February, April, June, August and October, 1958, and one meeting on February 25, 1959. All meetings were dinner meetings and were held at the Kennedy Veterans Administration Hospital. With the new members added during the year, the Memphis Thoracic Society membership totaled 68 at the close of 1958.

At the February 25th meeting, the program consisted of: (1) Resume of the 18th VA-Armed Forces Conference on Chemotherapy of Tuberculosis, St. Louis, February 2-5, 1959, by Dr. Sam Phillips, Chief, Pulmonary Disease Service. (2) Bronchogenic Carcinoma in Patients with Pulmonary Tuberculosis, by Dr. Roger E. Campbell, Thoracic Surgical Section.

### Delay in Medicare Claims

The office of Dependents Medical Care is concerned about the receipt of a large number of claims which have been delayed for a considerable period of time after completion of care. Delayed billings cause many problems and all parties involved are anxious for the settlement of payments as soon as practicable. From the government's standpoint, the timely receipt of claims is most important in that the information is used as the basis for budgetary requests and other required statistical data.

It is emphasized that Medicare contracts call for payment to be made on the basis of "complete" claims. Physicians are urged to obtain all of the necessary information, including the Medicare Permit, if required, or make arrangements for obtaining same, at the time the patient makes the initial visit and at the time the understanding is reached that care will be rendered under the Medicare Program.

It is also requested that physicians complete old claims on hand as soon as practical. It becomes more and more difficult to process these claims and resolve difficulties which may arise in connection with them. It will be of benefit to every physician participating in the Medicare program, if they will see that all claims are completed and forwarded to the fiscal agent as promptly as possible.

### **Tennessee State Orthopedic Society**

The Tennessee State Orthopedic Society held its 10th annual meeting on March 15th, in the University of Tennessee Institute of Pathology at Memphis. The principal speaker was Dr. H. R. McCarroll, St. Louis, immediate past-president of the American Academy of Orthopedic Surgery. He addressed the society on the subject, "Congenital Dislocation of the Hip."

Dr. R. Beverly Ray, Memphis, was elected president.

### **Nashville Surgical Society**

Dr. Albert Kattus, Los Angeles, associate professor of medicine at UCLA and chief of the cardiovascular division, addressed a joint meeting of the Nashville Surgical Society and the Nashville Society for Internal Medicine, on February 10.

The Middle Tennessee Heart Association also presented Dr. Kattus as guest speaker at a meeting to which practicing physicians throughout Middle Tennessee were invited.

### **Physicians Oppose Moving Kennedy to Medical Center**

The Memphis and Shelby County Medical Society has gone on record as opposing to moving Kennedy Veterans Hospital into the Memphis Medical Center. The society contends that such a move would "substantially" increase the cost of medical care for patients in private hospitals.

A resolution opposing the move was adopted in a special meeting of the Memphis Society's House of Delegates.

The Society also believes that it would not be wise to have all major hospitals in Memphis situated so closely together in the event of an enemy attack and further that Kennedy could best serve the community by remaining outside the heavily concentrated Medical Center.

### **University of Tennessee College of Medicine**

The Muscular Dystrophy Association of America, Inc. has made available a \$10,000 grant to the University to start a new experimental study on muscles. The project is under direction of Dr. James N. Etteldorf and Dr. Harris L. Smith, of the Department of Pediatrics.

★

Grants totaling \$99,625 for medical research have been awarded Dr. McChesney Goodall of the University of Tennessee Memorial Research Center at Knoxville, by the U. S. Public Service. The grants are for the continued study on three research projects.

★

The Memphis Heart Association has awarded a \$5,000 grant to the Division of Surgery, to support research work by Dr. James W. Pate. This will make possible increased use and modification of a heart pump which was bought for U.T. through a previous grant from the Heart Association.

★

Dr. J. Robert Teabeaut has resigned as assistant professor of pathology at the University.

★

Authorities on cancer from three universities and a leading hospital, spoke at a symposium on head and neck cancer at the University of Tennessee in Knoxville on March 12. The speakers came from the U.T. College of Medicine, The University of Alabama, the University of Buffalo and John Hopkins Medical School. Approximately 250 physicians, dentists, nurses and hospital staff personnel from East Tennessee attended the session. The speaker list included Dr. Leonard Robinson of the Alabama College of Dentistry; Dr. Frank C. Marchetta, chief of the Department of Head and Neck Surgery, University of Buffalo Hospital; Dr. Herman Lavelle of the U.T. Medical School's Department of Otolaryngology; and Dr. Milton T. Edgerton, chief plastic and reconstructive surgeon, Johns Hopkins Medical School, Baltimore.

### **Vanderbilt University School of Medicine**

Dr. David E. Rogers, a leader in the study of human resistance to infections, has been



named head of the Department of Medicine and Professor of medicine at Vanderbilt University School of Medicine, succeeding Dr. Hugh J. Morgan who retired in June, 1958. He is at present associate professor of medicine at Cornell Medical Center and New York Hospital. Dr. Rogers has been particularly interested in his study of human resistance to the staphylococcal diseases which have been difficult to combat in the antibiotic era. He will assume his duties with the 1959-60 academic year. Dr. Rogers received his undergraduate education at Ohio State University, Columbus, and Miami University at Oxford, Ohio. He received his M.D. degree from Cornell in 1948.

★

A research project at Vanderbilt University School of Medicine has been given added support with a grant of \$11,600 from the Muscular Dystrophy Association of America, Inc. Entitled "Studies on Oxidative Phosphorylation as Related to Muscular Dystrophy," the project was initiated in 1956. The grant is one of 19 included in a total of \$178,857.00 recently allocated by the Muscular Dystrophy Association.

★

The University has received Federal grants totaling \$36,146 to help build and equip health research facilities. The University received two of 45 grants from the Public Health Service.

★

The Vanderbilt Medical Society conducted its meeting on March 6th in the Vanderbilt University School of Medicine amphitheater. Papers given were: "Ascorbic Acid, Folic Acid Interrelationships in the Monkey," by Dr. C. W. Woodruff; "Megaloblastic Anemia Associated with Anticonvulsant Drugs," by Dr. R. C. Hartman; and "Therapeutic Iron Requirements in Gynecologic Anemia," by Dr. W. J. McGanity.

★

The American Medical Association's Council on Foods and Nutrition and the Vanderbilt University School of Medicine are sponsoring a one-day symposium on heart disease and disorders of nutrient absorption. It will be held in the Amphitheater of the Vanderbilt University School of Medicine on May 8, opening at 9 a.m., with the following program:

#### *Nutrition and Heart Disease*

- A.M. Chairman—George R. Meneely, M.D., Department of Medicine, Vanderbilt School of Medicine
- 9:00 Introduction—John W. Patterson, M.D., Dean, Vanderbilt School of Medicine
- 9:15 The Regulation of Electrolytes in the Management of Heart Disease—E. V. Newman, M.D., Nashville
- 10:00 Diet and Diuretics in Hypertensive Heart Disease—H. P. Dustan, M.D., Cleveland
- 10:45 Coffee
- 11:00 The Role of Diet in Managing Coronary Heart Disease—Ash-ton Graybiel, M.D., Pensacola, Fla.
- 11:45 Summary and Discussion

#### *Nutrition and Disorders of Absorption*

- P.M. Chairman—William J. Darby, Ph.D., M.D., Department of Biochemistry and Nutrition, Vanderbilt University
- 1:30 The Recognition and Management of Steatorrhea—Julian Ruffin, M.D., Durham, N.C.
- 2:30 Celiac Disease and Pancreatic Fibrosis—P. A. di Sant'Agnese, M.D., New York
- 3:15 Coffee
- 3:30 Absorptive Difficulties Following Gastrointestinal Surgery—Parker Vanamee, M.D., New York City
- 4:15 Summary and Discussion

The meeting is open to physicians, nurses, dietitians, medical students and other interested persons.

## PERSONAL NEWS

**Dr. Guy C. Pinckley**, Jamestown, was recently honored for service on the Fentress County Selective Service Draft Board.

**Dr. Francis Murphey**, Memphis, was a speaker before the American College of Surgeons meeting, held in St. Louis.

**Dr. James P. Worden**, Knoxville, was the guest speaker recently for the Knoxville Junior Chamber of Commerce.

**Dr. Jack Stripling**, Lexington, has announced the opening of his office for the practice of medicine in association with **Dr. Maurice Lowry**.

**Dr. David P. McCallie**, Chattanooga, addressed the Brainerd Kiwanis Club on the subject "Heart and the Businessman."

**Dr. Richard Hobart**, Fountain City, spoke on the subject "Diseases of the Heart" before the Fountain City Kiwanis Club.

**Dr. W. K. Tilley**, Lebanon, has been elected president of the Wilson County Medical Society. Other officers are **Dr. C. T. Lowe**, vice president and **Dr. T. R. Puryear**, secretary-treasurer.

**Dr. Edward Kelman**, Maryville, spoke on cancer at a meeting of the Maryville Lions Club.



**Dr. Robert G. Allen**, Memphis, recently addressed the West Tennessee Chapter of the American Physical Therapy Association.

**Dr. Harold Boyd**, Memphis, gave two lectures at the Alumni Postgraduate Convention of the College of Medical Evangelists in Los Angeles, March 8-12. He discussed "Low Back Pain" and "Obscure Acute Traumatic Injuries."

**Dr. Anthony P. Jerome**, Memphis, recently addressed the Memphis-Shelby County Medical Technologists Society.

**Dr. Philip H. Livingston**, Chattanooga, spoke on the subject, "Problems of Modern Cardiac Research and Accomplishments," at a meeting of the Chattanooga Lions Club.

**Dr. Don L. Eyler**, Nashville, has been named to the Committee on Health for Peace, a national committee to promote better international relations.

**Drs. Robert DePersio, Harold Steffee, and Dana Nance**, Oak Ridge physicians, recently participated in a cancer forum following the showing of two films dealing with breast and uterine cancer.

**Dr. Robert E. Mabe**, Chattanooga, has been certified as a diplomate of the American Board of Internal Medicine.

**Dr. Lawrence C. Ball**, Oak Ridge, has announced his moving to Roanoke, Virginia where he will be associated as physician and surgeon with the Norfolk and Western Railroad.

**Dr. William F. Outlan**, Somerville, has been named Jaycee of the year at Somerville.

**Dr. John L. Armstrong**, Somerville, was recently honored by Lambuth College. He received the Richard E. Womack award.

**Dr. Burt Friedman**, Memphis, addressed the Central Orthodox Institute for Adult Jewish Studies, on the subject "Smoking and Its Relationship to Lung Cancer."

**Dr. Baker Hubbard**, Jackson, has been elected to the board of Trustees of the Tennessee Hospital Service Association.

**Dr. John P. Lindsay**, Nashville, recently addressed the Mid-West Regional Cancer Conference at Chicago.

**Dr. R. H. Wiggall**, Knoxville, addressed the Knoxville Jayceettes.

**Dr. Roy R. Bowes**, Goodlettsville, has been elected a member of the United States section of the International College of Surgeons.

**Dr. David E. Stewart**, Brownsville, has been named a vice president of the Mid-South Postgraduate Medical Assembly.

**Dr. James G. Hughes**, Memphis, was a recent speaker before the Chicago Medical Society's Clinical Conference. His subject was "Treatment of the Epileptic Child."

**Dr. E. Kent Carter**, Kingsport, is the director of the Holston Valley Community Hospital's new school for X-ray technician training.

**Dr. E. Wayne Gilley**, Chattanooga, recently spoke on the subject, "Prevention, Diagnosis and Treatment of Heart Disease" over a Chattanooga television station.

**Dr. James L. McKnight**, Clarksville; **Dr. Don L. Eyler**, Nashville; and **Dr. Stewart Smith**, Chattanooga, recently participated in a two-day conference at New Orleans on arthritis and birth defects.

**Drs. G. Sydney McClellan, Robert L. Chalfant, John C. Bureh and Cleo Miller**, all of Nashville, recently participated in an educational program and film showing in Nashville. The movie was entitled, "Time and Two Women."

**Dr. Edwin Williams** and **Dr. Albert Weinstein**, Nashville, addressed the Christian County Medical Association at Hopkinsville, Kentucky, on March 24 on the subjects of "Endometriosis" and "Arteriosclerosis" respectively.

**Drs. William F. Meacham, Cully A. Cobb, Jr., and Joe M. Capps**, Nashville, announce their association in the practice of neurological surgery with offices in the Medical Arts Building.

## ANNOUNCEMENTS

### Pediatric Allergy Seminar

The Department of Pediatrics, Allergy Section, University of Tennessee College of Medicine will offer a three-day program May 20, 21, and 22. Thorough consideration will be given to the varied problems of allergy as applied to patients of pediatric age.

### Symposium Sponsored by Vanderbilt

The American Medical Association's Council on Foods and Nutrition and the Vanderbilt University School of Medicine are sponsoring a one-day symposium on heart disease and disorders of nutrient absorption. It will be held in the Amphitheater of the Vanderbilt University School of Medicine on May 8, opening at 9 a.m.

# Journal of the Tennessee State Medical Association

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Volume 52

MAY, 1959

Number 5

The introduction of this enzyme in cataract surgery seems an exciting event to ophthalmic surgeons. It provides for greater ease of extraction of cataracts and with fewer complications.

## Alpha-Chymotrypsin in Cataract Surgery\*

PHILIP MERIWETHER LEWIS, M.D., and CLAUDE D. OGLESBY, M.D.,†  
Memphis, Tenn.

This paper is based upon the pooled experiences with the enzyme alpha-chymotrypsin (Zonulolysin) of the ophthalmologists and the residents composing the staff of the Department of Ophthalmology of the University of Tennessee College of Medicine. The animal surgery was done by the resident staff in the Institute for Clinical Investigation of The University of Tennessee.

Dr. Joaquin Barraquer of Barcelona accidentally discovered that the injection of alpha-chymotrypsin 1:5000 into the vitreous of a patient with massive hemorrhage caused a luxation of the lens. Following this discovery he conducted numerous experiments on rabbits and proved that the zonular ligament was lysed and that the eye was apparently not damaged. Following this he proved in eyes enucleated from fresh cadavers that the zonular ligament disintegrated when soaked in alpha-chymotrypsin solutions. In each case the lens capsule and the hyaloid membrane remained intact. Histologic studies showed no damage to the corneal endothelium, the iris, or

other structures which were exposed to the drug.

As soon as Dr. Barraquer had verified the innocuousness of the agent in the eyes of animals and in enucleated human eyes he began to use it in patients whose eyes were blind due to various posterior lesions but with normal anterior segments. The results were the same as in animals and in enucleated human eyes. The zonular ligament was lysed and the remainder of the eye appeared to be completely intact and unharmed. Following this he began to employ the enzyme in various cataract extractions. His method and results received world-wide publicity from the showing of his moving picture of the procedure at the International Congress of Ophthalmology in Brussels in September 1958, and also at the Academy of Ophthalmology and Otolaryngology in Chicago in October, 1958.

This discovery is undoubtedly one of the most exciting things that has happened in regard to cataract surgery since Daviel reported removal of the lens in 1753. Realizing the importance of rapidly obtaining statistics in a large number of cases the American Academy of Ophthalmology and Otolaryngology inaugurated a study with the drug under the chairmanship of Doctors Derrick Vail and Richard Troutman. Most of our supply of the drug has been obtained through Dr. Troutman of New York University. The product we have used is the Spanish one made by P.E.V.Y.A. of Barcelona. It is also made by, and is obtainable from Armour and Company of Kankakee, Illinois.

\*Read at the meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, April 14, 1959, Memphis, Tenn.

†From the Department of Ophthalmology of the University of Tennessee, College of Medicine, and The Memphis Eye, Ear, Nose and Throat Hospital, Memphis, Tenn.

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### Animal Experimentation

Having received directly from the Barcelona manufacturers a sufficient amount of powdered alpha-chymotrypsin to make 20 cc. of the 1:5000 solution we proceeded, during November 1958, to investigate its use for zonulolysis and removal of the lens in rabbits and dogs.

The animals were anesthetized with intravenous Nembutal and the operations were performed by various members of the resident staff. We had been informed that the enzyme would cause rapid absorption of catgut sutures. Therefore 000000 black silk was used to close the corneoscleral incisions.

It was demonstrated to our satisfaction that the drug did produce a weakening effect on the zonular ligament so the intracapsular removal of the lens was more easily performed in rabbits and in dogs. The latter are known to have a very strong zonular ligament.

### Effect on Catgut Sutures

Having been advised that alpha-chymotrypsin would greatly weaken or actually dissolve catgut, and since most of our staff routinely employed 000000 mild chromic catgut (Ethicon No. 790) for cataract surgery, we felt that the effect of the enzyme on this suture material should be investigated carefully. With this in mind one of us (C.D.O.) conducted the following experiment.

Surgical catgut U.S.P. chromic, (Ethicon No. 790) was used in this test. The material was cut into lengths of approximately 5 cm. and allowed to stand in a solution of alpha-chymotrypsin 1:5000 for various periods of time. The solution was maintained at a temperature of 37° C. The strength of the suture was tested immediately after removal from the solution of alpha-chymotrypsin. A piece of the suture was then placed in normal saline for 24 hours at 37° C. and again the strength was tested. The same procedure was done after 9 days in the solution.

The apparatus for testing the suture is shown in figure 1, and consists of a stand with a clamp, a metal spring with two eyes, a writing arm which was welded to the lower spring eye, and a smoked drum kymograph. Before any suture was tested, the upper eye of the spring was attached to the bar of the clamp and a small aluminum pan fastened to the lower eye. Ten gram weights were

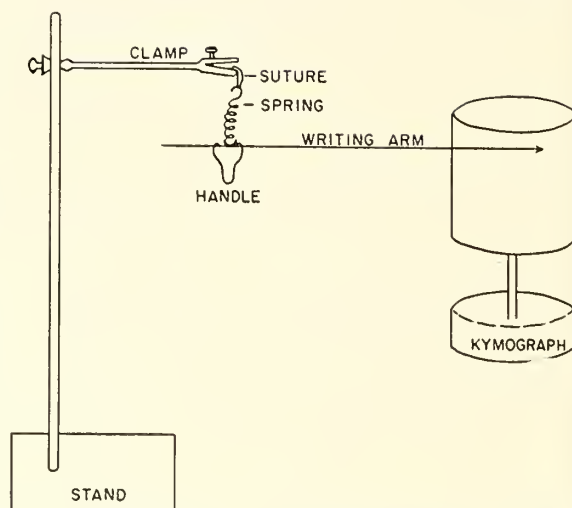


FIG. 1. Apparatus used in testing tensile strength of catgut.

added successively. This formed a scale on the drum which was used as a standard for testing the suture. The suture was looped through the upper eye of the spring and the free ends were placed in the clamp. With the writing arm on the kymograph, pull was made on the lower end of the spring until there was a break in the suture. The excursion of the writing arm on the drum was measured and compared to the scale previously prepared. The results are shown in figure 2. The ordinate represents the scale expressed in

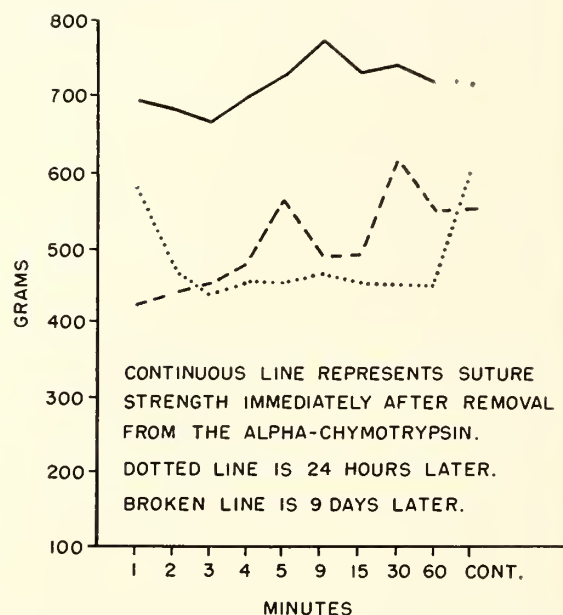


FIG. 2. Shows tensile strength of catgut after soaking in alpha-chymotrypsin.

grams. The abscissa represents minutes of exposure in the alpha-chymotrypsin. The last column, however, represents continuous exposure.

Our method of testing is not recommended as a standard for ascertaining the tensile strength of sutures. It does, how-



ever, give a rough approximation of the relative strengths. It is obvious that alpha-chymotrypsin does not dissolve catgut sutures. In no instance did the strength ever fall below 420 Gm. on the scale regardless of treatment. U.S.P. requirements for 000000 catgut is a straight pull of one-half pound. Considering that our suture was doubled, one-half of the lowest reading should be adequate for holding the edge of a cataract incision securely. We believe this experiment proves that there is no reason to abandon the use of catgut sutures when alpha-chymotrypsin is employed in cataract operations.

Clinical Study

From December 4, 1958 to April, 1959 a total of 80 eyes have undergone cataract extraction with the use of alpha-chymotrypsin. These operations were performed by members of the attending and resident staffs of the Memphis Eye and Ear Hospital and The John Gaston (City) Hospital. Records on each of the operative technic and of any complications occurring at the time of, or during the immediate postoperative period were kept on the questionnaires furnished by the Academy and were sent to Dr. Richard Troutman of New York University.

The following statistics are based on information obtained from an analysis of the answers given in the questionnaire, from the personal experience of the authors and from the personal communications with the various collaborating surgeons.

Table I

Total Number of Operations	80
Average Age	64 years
Average Amount Drug Used	2 cc.
Average Time of Drug in Anterior Chamber	3.5 minutes
Operative Complications	Very few vitreous loss—8 cases Rupture of capsule—4 cases
Facility of Extraction	Easier . . . . . 77 cases Not easier . . . . . 3 cases
Postoperative Reaction	Less than average
Postoperative Complications	Shallow or flat anterior chamber . . . . . 6 HypHEMA 7    Corneal Edema . . . . . 6 Iritis 7    Choroidal Detachment 0

Age. In our series of 80 cases the youngest patient was 21 and the oldest 84 years of age. The average age was 64 years.

Preoperative complications. These were rather few and consisted of vascular sclerosis, hypertension, diabetes mellitus, previous operations for glaucoma, old uveitis and previous penetrating wounds.

Amount of alpha-chymotrypsin and time allowed to remain in eye. The smallest amount of drug to be effective was 1 cc.; the largest amount used (probably not required) was 5 cc.; the average amount used was 2 cc. The average length of time it was allowed to remain in the eye was 3.5 minutes.

Conjunctival flap. Sixty-five percent of these cases had limbal flaps and 35% had fornix-based flaps.

Sutures. In only 4 cases were silk sutures employed. In all others 000000 mild chromic catgut (Ethicon No. 790) was used. In about one half of the cases only two corneoscleral sutures were used. Three or more were used in the other one-half. The sutures were preplaced in a majority of cases. However, the post-placed cases appeared to do just as well.

Iris surgery. Round pupil extractions were performed in 72 cases. Peripheral iridotomies were done most frequently (51 cases). Peripheral iridectomies were done in 21 cases. Complete iridectomy was performed in 8 cases, due to previous glaucoma, vitreous loss or old age.

Lens delivery. In 35 cases an erisophake was used; in the remainder (45 cases) Ar-ruga forceps, or some modification of these was employed. If zonulolysis is almost complete we believe that an erisophake is safer.

The lens was delivered in the capsule in all but 4 cases. Removal of the remaining capsule and cortex was accomplished in every case.

Facility of lens removal. In all but 3 cases it was the opinion of the surgeon that the extraction was made easier. In one of these operations done by a junior resident, the enzyme solution was mistakenly used at room temperature instead of being warmed. It apparently had no effect on the zonula which was quite difficult to rupture and some fluid vitreous was lost. In one of the other cases, that of a man in his fifties, less than 1 cc. of enzyme was used and only allowed to remain in the eye 2 minutes. Details in the third case were not obtained.

### Operative Technics

*The author's.* The patients were prepared in the usual manner. All operations were done under local anesthesia. A limbal-based flap was prepared, slots were cut at the limbus, and two 000000 mild chromic catgut corneoscleral sutures were preplaced. Entry was made with a keratome and the wound was enlarged with scissors. Immediately following this, 1 to 3 cc. (usually 2) of a 1:5000 solution of alpha-chymotrypsin, warmed in a water bath to body temperature, were injected slowly into the posterior chamber. At first we used a blunt-pointed straight lacrimal canule, but more recently we used the ball-pointed Troutman irrigator made by Storz. This canule constitutes a definite improvement because with this instrument it is almost impossible to injure the iris, lens or zonule. Any of these structures can be injured with a regular lacrimal needle. We believe it wise to inject some of the drug behind the iris at 12 o'clock as well as below, medially and temporally, so the enzyme comes into direct contact with the zonular ligament all around the lens. We believe this is better done through the partially dilated pupil rather than through the peripheral iridectomy opening.

Following the injection, an interval of from 4 to 6 minutes should elapse before proceeding with an extraction. In young people the drug should be permitted to remain in the eye 10 minutes or longer. During the waiting period the preplaced sutures are arranged for tying, and the iris surgery is performed. Additional corneoscleral sutures may be placed if desired. The anterior chamber is then irrigated thoroughly with normal saline solution. If the pupil happens to have become widely dilated it may be possible to observe that the zonular ligament has already disintegrated.

The small Bell irisophake seems to be quite satisfactory for removing the lens. It may be applied to the lower part of the capsule and the lens delivered by tumbling, or it may be applied beneath the iris above and the lens delivered by the sliding technic. Very little pressure on the globe has been necessary. Following this the corneoscleral sutures are tied and the flap sutured with a piece of the same 000000 chromic

catgut. Two percent pilocarpine drops are instilled and Neosporin ointment is applied.

*Other technics.* Many different technics were employed by the various participating surgeons in this series of operations. Fornix-based flaps, postplaced sutures and capsule forceps were used in many cases. No particular complications were caused by these variations either at the time of the operation or postoperatively.

### Operative Complications

Very few complications occurred at the time of operation. In 2 cases in which the operations were performed by the senior author there was a loss of formed vitreous. In the first case, in a man aged 50, as soon as the keratome incision was made the entire contents of the globe pushed forward against the cornea and upper limbus as if an expulsive hemorrhage were imminent. The iris and zonular ligament were injured with the scissors while enlarging the wound. Alpha-chymotrypsin was injected into the anterior chamber with great difficulty because the lens was thrust against the cornea. The hyaloid protruded through the wound and ruptured, following which there was a loss of a small amount of formed vitreous. The lens was slid out with a loop and the wound closed. Fortunately, there have been no postoperative complications to this date (96 days). Corrected vision is 20/25 and Jaeger No. 2. The other eye was operated upon four days later with no complications and a perfect result. (It is not within the scope of this paper to discuss the cause of this most unusual experience in the first eye, certainly it could not be attributed to the alpha-chymotrypsin.)

In the second case the operation was proceeding in a normal fashion. The lens was tumbled through a round pupil with practically no pressure on the globe. As the upper part of the lens was being lifted and wheeled out of the eye the hyaloid ruptured, apparently because it was adherent to the lens capsule superiorly. The wound was closed and air injected. This patient had some postoperative trouble. Corneal edema persisted for about three weeks. The eye was congested longer than usual, and a drawn-up pupil resulted. Final vision was 20/25 and Jaeger No. 2.



In both of these cases satisfactory akinesia, immobility and hypotony were present prior to sectioning the eye. It was believed the complications could not be attributed to the use of alpha-chymotrypsin.

Vitreous was lost in a total of 8 cases or in 10 percent. This seems rather high, but in no case did the surgeon feel that it was due to use of the drug. Intracapsular extraction of the intact lens was performed in almost every case. In 4 cases the capsule ruptured but was completely removed in each one. In the 2 cases of traumatic cataract, aged 21 years and 25 years, it was possible to easily pull out the entire capsule because of lysis of the zonular ligament.

In no case was there a dislocation of the lens into the vitreous, a severe hemorrhage or any other serious complication.

#### Postoperative Complications

These have been surprisingly few.

(1) A *shallow or flat anterior chamber* has occurred in 4 cases. One was present the first postoperative day, but was normal in 48 hours and remained normal. The second patient reported to the office 2 weeks after operation in an inebriated condition. There was a small hyphema and an almost flat anterior chamber. Although he did not remember any accident it was thought the eye had been struck. A dressing and shield were applied and he was sent home to bed. Two days later the anterior chamber was deep, the blood had absorbed and the eye appeared to be most satisfactory. No further trouble occurred.

The third case was a terrific "squeezer." The anterior chamber was shallow on the second day and remained so until corrected surgically. The wound was filtering in the 2 o'clock meridian, with a bleb beneath the flap. Cauterization with trichloroacetic acid was done on the fifth and sixth postoperative days, but the condition did not improve. On the seventh postoperative day two additional corneoscleral sutures were placed and the anterior chamber filled with air. Following this there was no further trouble.

We feel quite certain that the complication in this patient, aged 81 years, was unrelated to the use of alpha-chymotrypsin for the following reasons: The right eye was operated on 4 days previously. Two cubic centimeters of the drug were used

and permitted to remain in the eye 5 minutes. The lens was lifted out without counter-pressure. The eye healed without complications. When the left eye was operated upon 4 days later, only 1 cc. of the drug was injected and permitted to remain for only 2 or 3 minutes. A rather tough zonule was encountered and counter-pressure was necessary. Since a smaller amount of drug was used and allowed to remain in the eye a shorter time, we feel that the leaking wound could not have been due to the use of the enzyme.

(2) *Striate keratitis*. This was seen in very few cases, about six in the whole series. Usually it disappeared in less than a week. One patient had rather marked corneal edema for from 3 to 4 weeks due to the protrusion of vitreous against the cornea in that area. It cleared spontaneously, aided perhaps by the local use of prednisolone ointment.

(3) *Uveitis*. A mild iritis occurred in 7 cases. This we believe is no greater and probably less than would occur in a similar series operated on without the drug. Mydriatics and local steroids caused a prompt subsidence of the inflammation.

(4) *Hyphema*. There have been 7 instances in the entire series. All were mild and absorbed quickly.

(5) *Choroidal detachment*. No case of choroidal detachment has occurred in this series. We consider this rather remarkable and attribute it to the fact that almost no pressure was used on the eyes in delivering the cataracts.

(6) *Pupillary block*. To date we have had no case of pupillary block, and none of secondary glaucoma.

(7) No instance of *retinal detachment* has occurred in this series.

We believe that almost without exception these patients have shown less postoperative reaction than in cases operated upon without alpha-chymotrypsin. Biomicroscopy has revealed no damage to the cornea, iris or hyaloid that could be attributed to the use of the enzyme. The visual results on those who have been refracted have been excellent.

#### Summary

A series of 80 cataract extractions have been performed by attending and resident



ophthalmic surgeons after the injection of alpha-chymotrypsin into the anterior and the posterior chambers.

The youngest patient was 21 years; the average was 64 years.

In almost every case the extraction was made easier.

No complications occurred during the operation that could be attributed to the use of the enzyme.

The postoperative reaction in these cases was definitely less than average. The few postoperative complications that occurred were mild and of short duration. Choroidal detachment was not found in any case.

It was demonstrated in our laboratory and by clinical use that 1:5000 solution of alpha-chymotrypsin does not appreciably effect the strength of 000000 mild chromic catgut.

It is the opinion of the authors and of the participating ophthalmologists that 1:5000 alpha-chymotrypsin, used as it was in this series of cases, does not cause any demonstrable damage to the eye.

#### Conclusions

It is the consensus of opinion of this

group that alpha-chymotrypsin definitely produces a zonulolysis and facilitates the intracapsular extraction of cataracts. While it is not necessary in elderly people, its use is in no way contraindicated and the postoperative reaction is lessened.

Its greatest value is in young adults and in those below the age of 60 years. It would seem wise to use the drug in the second eye of any patient in whom a resistant zonular ligament had been encountered in operating on the first eye.

It is safe to continue the use of 000000 mild chromic catgut sutures for cataract surgery.

The incidence of the common postoperative complications, such as corneal edema, iridocyclitis and choroidal detachment, have been definitely reduced. Wound healing was not retarded.

#### References

1. Barraquer, Joaquin: Enzymatic Zonulolysis: Contribution to Surgery of the Crystalline Lens, *Surv. Ophth.* 3:299, 1958.
2. Rizzuti, A. Benedict: Alpha-chymotrypsin (Quimotrase) in Cataract Surgery, *A.M.A. Arch. Ophth.* 61:135, 1959.

There is a generally growing opinion that anticoagulation treatment is indicated in obstructive disease of the coronary and cerebral vessels. Accumulating evidence seems to point to a lessened incidence of coronary occlusion subsequent to an initial attack, as well as control of progressive cerebral vascular disease if there is established insufficiency of the cerebral circulation.

## The Use of Anticoagulants in the Treatment of Coronary and Cerebral Vascular Disease\*

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There is no clear unequivocal evidence that anything controls the progress of atherosclerosis in human beings. Until the pathogenesis of this disease is elucidated and its prevention accomplished, empirical therapy would seem worthwhile. This sort of attack is considered proper providing it is not seriously disrupting to the patient's mode of living and happiness, and providing, of course, that it is not too dangerous a method of management.

Such an approach, I believe, is represented by the use of anticoagulants in the management of patients with coronary and cerebral vascular disease. The use of this method of treatment presupposes that good laboratory facilities are available, that one has a cooperative patient, that there are no absolute contraindications, and that the physician is familiar with this type of therapy. If these precautions are taken, it is believed that anticoagulant therapy in these diseases offers much to the patient's welfare and longevity.

Enough evidence has appeared in the literature to make one extremely optimistic in the effective use of anticoagulants in the management of coronary and cerebral vascular disease. Of the many reports, of great interest is one by Manchester<sup>1</sup> on some 404 patients who had had myocardial infarction, and whose course was followed for a period of 1 to 10 years, 204 of whom were placed on long term anticoagulant therapy and 200 on placebos following the initial infarction. He reports one-eighth the mortality and one-third the morbidity

in the patients receiving anticoagulant therapy as compared with those receiving ascorbic acid as a placebo and followed over the same period of time. In another study by Keys,<sup>2</sup> on the survival rate after acute myocardial infarction followed by long term therapy for 6 months to 5 years, there were 186 control cases and 71 cases in which anticoagulants were used. He found that the death rate was three times greater in the group who did not receive anticoagulants.

Other reports by Wright and associates<sup>3</sup> have shown that the many reports on effective use of anticoagulant therapy in coronary disease have been confirmed by comprehensive studies of the committee on anticoagulants of the American Heart Association, and have been substantiated by more than 40 reports from institutions in the United States and numerous foreign countries. These reports have demonstrated that workers in many areas, working in a variety of conditions, can obtain a marked reduction in the death rate and an even more striking reduction in the rate of thromboembolic complications by the use of anticoagulant therapy in myocardial infarction. Almost without exception the series of patients treated with anticoagulants, according to these authors, shows a decrease in the death rate of approximately one-third to one-half that in the control series.

With regard to the use of anticoagulant therapy in cerebral vascular disease, reports by Millikan and associates,<sup>4</sup> review the results of treatment of 317 patients with manifestations of cerebral vascular disease. A group of 94 patients were classified as having intermittent insufficiency in the vertebral basilar system, and in 90 of these the attacks stopped completely soon after the

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effect of the anticoagulant drug became demonstrable by laboratory tests. The second group of 107 patients with irreversible thrombosis in the vertebral basilar system had a mortality rate of only 8% while on anticoagulant therapy, as compared with the rate of 50% reported in the study of 31 similar patients who did not receive anticoagulants. A third group of 85 patients, as reported by Millikan, with intermittent insufficiency of the carotid system, were treated with anticoagulants with cessation of the characteristic attacks. A fourth group of 31 patients with active advancing carotid thrombosis went on to have cerebral thrombosis in only 6% of the cases, as compared with 35% of a reported series of similar patients who did not receive anticoagulants. Millikan concludes that anticoagulant therapy in the management of cerebral vascular disease is preventive rather than reconstructive, but that it does alter favorably the natural history of cerebral vascular disease in these four types.

As to the rationale behind the use of anticoagulants in coronary disease, it is believed that the use of these drugs prevents propagation of a thrombus which is already formed as in coronary thrombosis and, in the case of coronary insufficiency without actual thrombosis, it is thought that by rendering the blood less coagulable a thrombus is less apt to form upon an ulceration of the intima of the coronary vessels. Then, too, a patient with coronary thrombosis is likely to have emboli either from a mural thrombus on the arterial side or from thrombosis in the peripheral venous system. With regard to the use of anticoagulants in cerebral vascular disease, one also expects to achieve a result that prevents propagation of a thrombus once it begins, as well as to render the blood less coagulable so it will have less tendency to clot in a slowed cerebral circulation.

#### Material of Study

Our series consists of 112 patients, manifesting either, or both coronary disease and cerebral vascular disease, followed over a period of 2 months to 9 years. In our group there were 47 cases of coronary insufficiency, 42 cases of myocardial infarction, 10 cases of cerebral vascular insufficiency,

5 cases of cerebral thrombosis and 8 cases of both coronary disease and cerebral vascular disease. (Table 1.) The data in our

Table 1

Type of Case	No. of		
	Cases	Males	Females
Coronary insufficiency (without infarction)	47	26	21
Myocardial infarct	42	38	4
Cerebral vascular insufficiency (without thrombosis)	10	5	5
Cerebral thrombosis	5	2	3
Coronary and cerebral vascular disease	8	4	4
Total	112	75	37

patients have been compiled to March 1, 1959. In our group of 47 cases of coronary insufficiency, there were 26 males and 21 females.

Of the 26 cases of coronary insufficiency in the male group, 15 patients are still on long-term anticoagulant therapy and are alive; 8 have stopped treatment and are alive. (Table 2.) One stopped therapy and

Table 2

#### CORONARY INSUFFICIENCY (WITHOUT INFARCTION) 47 CASES

	Males	Females
Still on treatment and alive	15	13
Stopped treatment and alive	8	5
Stopped treatment and died	1	1
Died while on treatment	2	2
Total	26	21

died, and 2 died while on treatment. In the female group of 21 cases, 13 are still alive and on treatment, 5 have stopped therapy and are alive, one stopped therapy and died, and 2 died while on treatment.

The one man with coronary insufficiency who died after stopping therapy was 50 years of age and had been on treatment for 10 months before stopping it. He died 9 months later from a myocardial infarction. Of the 2 men who were on therapy and died, one had been on treatment for 2 months and was 62 years of age. The nearest prothrombin time taken 5 days before his death showed it to be 130% prothrombin concentration. No postmortem examination was obtained on this patient. The second man who died was age 49, and had been on therapy for 5 months with death at the end of this time. His prothrombin concentration taken 2 days before death was adequate, being recorded as 18% prothrombin concentration. At necropsy no myocardial



infarction was found; it was assumed that he died from a ventricular arrhythmia since his death occurred at a football game after watching his son make a touchdown.

In the female group of 21 patients, there was one patient who stopped therapy and died; she was 78 years of age. She had been on treatment for 8 months, having stopped it 7 months before her death. The exact cause of her death was not determined. Of the 2 patients who died while on treatment, one was a 52 year old woman who had been on long-term therapy for 17 months. The nearest prothrombin time was five days before death—the control showed 14, and the patient 19 seconds. She presumably died from a myocardial infarction as suggested by the terminal history. Post-mortem examination was not permitted. The second patient was a 57 year old woman with angina decubitus, who had been on therapy for 2 months and died with a prothrombin concentration of 10% the day before death. Necropsy was not permitted on this patient. It was presumed that she died from myocardial infarction as gleaned from the history. The other 18 patients are alive but some are having symptoms of coronary insufficiency.

In the male group of 38 patients, who had one or more myocardial infarctions and who were placed on anticoagulant therapy, the records show that 25 are alive and well, and still on anticoagulant therapy. (Table 3.) Four have stopped treatment and are

therapy from 1951 to 1955. He died from terminal pneumonia 4 days following the stoppage of his therapy. Of those who died while on treatment, there have been 7 cases. The first, a man, age 57, died during an argument. No postmortem examination was obtained, but it was believed that he died from a cardiac arrhythmia. The second man, age 68, who died following sexual intercourse, had had congestive failure for the previous 3 months. No fresh infarction was found at necropsy. The third was a 72 year old man who died from a ruptured abdominal aneurysm, proved at postmortem examination. The fourth was a 50 year old man who had had 4 previous infarctions and died in congestive failure. Necropsy was not permitted. The fifth was a 52 year old man, who had one previous infarction and died in ventricular tachycardia. Postmortem study revealed a left ventricular aneurysm but no fresh infarction. The sixth case was a man, aged 58, who died in complete heart block after only 10 days of therapy. The seventh case was a man, aged 54, who died in congestive failure with left ventricular aneurysm as shown by post-mortem examination. No fresh infarction was found.

A continuation of the analysis of our cases shows that in the female group of 4 patients who had one or more myocardial infarctions, there are 2 who are alive and still on therapy. One who stopped treatment and is alive, had been on therapy for one year between 1950 and 1951. There is one who stopped therapy and is dead had been on treatment for a period of some 4 months, 7 years ago. She died of myocardial infarction in May, 1958. In this group we have had no female patients who have died from myocardial infarction while on therapy.

In our group of 10 cerebral vascular insufficiency cases without detectable coronary disease and without cerebral throm-

Table 3

MYOCARDIAL INFARCTION (ONE OR MORE PREVIOUS INFARCTIONS) 42 CASES		
	Males	Females
Still on treatment and alive	25	2
Stopped treatment and alive	4	1
Stopped treatment and died	2	1
Died while on treatment	7	0
Total	38	4

alive. Two stopped therapy and died. Of these, one was a 52 year old man who had been on long-term therapy from 1949 to December 1957. He died February 15, 1958 after having had cerebral trauma while in Cuba; anticoagulants were stopped for this reason. He died of a myocardial infarction two months following the discontinuance of his treatment. The second patient was a man, aged 93, who had been on long-term

Table 4

CEREBRAL VASCULAR INSUFFICIENCY (WITHOUT PREVIOUS THROMBOSIS) 10 CASES		
	Males	Females
Still on therapy and alive	3	5
Stopped therapy and alive	1	0
Stopped therapy and died	1	0
Died while on therapy	0	0
Total	5	5

bosis, there are 3 men who are alive and still on therapy. (Table 4.) One, aged 63, stopped treatment and is alive after one year. One man who stopped therapy and died at age 90, had been on treatment for 3 months (from May to July 1956) and died in 1958 (from terminal pneumonia. There are 5 women who are alive and still on therapy, and there are none who have stopped therapy and died, and none who have died while on therapy in either the male or female group.

In the 5 patients who suffered a cerebral thrombosis, there are 2 men who have been on therapy since the onset of their thrombosis. (Table 5.) The first is a man, age

Table 5

CEREBRAL THROMBOSIS (ONE OR MORE)  
5 CASES

	Males	Females
Still on therapy and alive	2	2
Stopped therapy and alive	0	1
Stopped therapy and died	0	0
Died while on therapy	0	0
Total	2	3

56, who had a cerebral thrombosis in December 1958, who is alive and still on therapy. The second, age 86, suffered a cerebral thrombosis in December, 1958, is alive and still on treatment. One woman, age 58, had a cerebral thrombosis in December, 1955, and was on anticoagulant therapy from December, 1955, to July, 1956. She stopped therapy then and is still alive. One female suffered a cerebral thrombosis in August, 1958, and is still on therapy and alive. She is 77 years of age. A third woman had a cerebral thrombosis in October, 1958, and is still alive and on therapy. She is aged 64.

In the group of 8 patients manifesting both coronary and cerebral vascular disease, there are 3 men patients who are alive and still on therapy. (Table 6.) The aver-

Table 6

COMBINED CORONARY AND CEREBRAL VASCULAR  
DISEASE  
8 CASES

	Males	Females
Still on therapy and alive	3	1
Stopped therapy and alive	1	1
Stopped therapy and died	0	0
Died while on therapy	0	2
Total	4	4

age of this small group is 75 years of age. There is one man, aged 57, who stopped

therapy and is alive, having been on therapy for 4 months prior to stopping it. No patients in this group of men who stopped therapy have died or died while on treatment. Of the 4 women, there is one patient, aged 89, who manifested cerebral vascular insufficiency in 1956 and had a myocardial infarction in July, 1957. She has been on therapy from May, 1956 to March, 1959, and is still alive. One woman, aged 80, who stopped therapy and is alive. She manifested a cerebral thrombosis in August, 1950, and cerebral and coronary insufficiency in January, 1955. She received long-term treatment from December, 1956 to December, 1957. There are 2 women who died while on therapy, one was 80 years of age who had a myocardial infarct in 1953, cerebral vascular insufficiency manifesting itself in December, 1956. She was on therapy from February, 1953 to March, 1957, when she died from terminal encephalomalacia. The second case, that of a woman, aged 84, had a myocardial infarct in 1948 and manifested cerebral vascular insufficiency in 1953. She was on treatment from 1950 to October 25, 1958, on which date she died of congestive heart failure.

Complications

We have had some interesting complications in our patients, among which are 3 instances of bleeding into the wall of the bowel. On one occasion bleeding occurred into the cecal wall, and an appendiceal abscess was thought of as a differential possibility. In another, hemorrhage occurred into the terminal ileum which compromised the lumen of the bowel and a side to side anastomosis was necessary at laparotomy. In the third case, bleeding occurred into the rectal wall following a patient's giving himself an enema which traumatized the rectum. Of interest was the constant hematuria present in a patient with a prothrombin concentration averaging 35 to 40 percent. This patient had been advised to have a cystoscopy to rule out possible organic disease of the bladder—a previous I.V.P. having been normal. He refused to do so for some 6 months, but finally consented. A carcinoma of the bladder was discovered. In such cases, anticoagulant therapy may bring to light a latent neo-



plasm which might perhaps not have bled had not the patient been on anticoagulant therapy. We have seen multiple cases of subcutaneous ecchymoses, none of which have been serious. We have noted the occurrence of gastrointestinal hemorrhage in at least 3 cases. In one, it was believed to have contributed to the death of the patient. We have had no instances of hemopericardium or of intracranial hemorrhage; at least none have been detected. The percentage of bleeding episodes that required a stopping of the treatment amounted to no more than 3 percent.

### Comments

With regard to the institution of therapy, we have found it proper to start treatment by the use of concentrated aqueous heparin, each cubic centimeter containing 200 milligrams of heparin, administered subcutaneously into the soft tissues just above the posterior iliac crest. The site of injection is not to be massaged, thereby permitting a slow release of heparin to attain a 12 hour effect. One hundred twenty-five to one hundred and fifty milligrams are injected every 12 hours until an adequate prolongation of the prothrombin time has been obtained as measured by the Quick method or until an adequate reduction in prothrombin concentration has been achieved according to the Owren technic of prothrombin determination.

We have found that a patient weighing less than 150 pounds usually obtains an adequate prolongation of his clotting time if 125 mg. of aqueous heparin are administered subcutaneously, as above, every 12 hours. For patients weighing more than 150 pounds, 150 mg. every 12 hours is recommended until the oral anticoagulant has become effective. Clotting time determinations have not been necessary.

Regarding the selection of the anticoagulant, we have used Coumadin as the drug of choice, since it can be given by all three routes of administration, which seems an advantage in case the patient is vomiting and cannot take the drug orally. However, we have on occasions used Dipaxin, Hedulin, and Dicumarol.

In the case of Coumadin, we have found that an average of 60 mg. as the initial dose

is sufficient to obtain an adequate prothrombin level within 18 hours. Frequently, we will give an additional 5 to 10 mg. the next day after the initial dose of 60 mg. For maintenance we have found that for about 90% of the patients, approximately 5 milligrams nightly will maintain an adequate effective prothrombin level. However, the range varies from 2.5 milligrams every third night to 12.5 mg. nightly.

Of great interest is the phenomenon of escape from the effect of the anticoagulant drug as observed in a patient who may be doing nicely on a constant dosage and then suddenly the effect of the drug is lost, or may exhibit an increased effect, precipitating a bleeding episode. Often the explanation for this escape phenomenon is not forthcoming, but rather frequently we find the patients have not been taking their medication at the same time of day and there is a difference in absorption. Because of this we always advise the patients to take the anticoagulant drug at bedtime so it will be taken on a stomach that contains approximately the same amount of food each evening. Then, too, since the effect of the drug occurs some 12 to 18 hours later, the patient can note during his waking hours whether or not he has hematuria or bleeding elsewhere. There are other factors which enter into this change in the effect of an anticoagulant drug on the prothrombin concentration. The use of antibiotics will change the bacterial flora of the intestinal tract so that less of the drug will be required, because of reduction in the production of vitamin K. Less anticoagulant has been found to be needed when patients use salicylates or go on alcoholic debauches. Of course, with the onset of renal insufficiency less drug is needed.

We have noted that in the first 10 days of anticoagulant therapy with drugs of the Coumarin series and the indandione group there have been no bleeding episodes even though the Quick prothrombin time has been prolonged 4 or 5 times the control or when the prothrombin concentration, as measured by the Owren technic, was less than 5 percent. We feel that this may be due to the fact that our tests are not measuring the prothrombin time above at this particular period, for it is believed that dur-



ing the first 10 days there is essentially a proconvertin deficiency. From 10 to 30 days, there are both a proconvertin and prothrombin depression, produced by the use of these drugs. After 30 days, in addition to a proconvertin and prothrombin deficiency, there is a PTC (plasma thromboplastic component) deficiency, the drug producing a broad inhibition of the clotting mechanism when all three of these factors are depressed. Therefore, we believe it may be best to use heparin during at least the first 10 days of therapy, rather than only during the first 48 hours, to maintain a reduced intravascular coagulability of the blood during the early period when myocardial infarction is thought to be impending or when cerebral ischemia is pronounced and one wishes an early anticoagulant effect.

### Summary and Conclusions

We realize that the above series of patients which has been reported is small, but we have gained the distinct impression that both mortality and morbidity have been lowered by the judicious use of anticoagulants in the long-term management of these diseases. We have made no attempt to deduce percentage effects from our treatment as we did not have a control group.

However, we have been particularly impressed with the frequency of relief of angina following the initiation of therapy in the coronary group, as well as in the amelioration or immediate cessation of symptoms associated with cerebral vascular insufficiency. We are keenly aware of the difficulty in evaluating the subjective symptoms of patients with either or both coronary and cerebral vascular insufficiency, and are very cognizant of the possible psychic effect exerted by the institution of any therapy by an enthusiastic physician. However, our experience in our group of patients, coupled with the many reports indicating reduction in the mortality and morbidity in these cases makes this form of therapy seem an indicated procedure to us.

With regard to the use of anticoagulants in good and bad risk patients with myocardial infarction and cerebral infarction secondary to coronary and cerebral throm-

bosis respectively, we make no effort to separate the patients. Our dictum has been that all patients—both good and bad risk—in the absence of a definite contraindication, are to be treated. We further feel that these patients should be treated indefinitely—perhaps for the rest of their lives—unless and until the pathogenesis of coronary and cerebral vascular atherosclerotic disease has been understood, following upon which a reversal of the pathologic process may be obtained or its progression stopped.

### References

1. Manchester, Benjamin: The Value of Continuous Long Term Anticoagulant Therapy, *Ann. Int. Med.* 47:1202, 1957.
2. Keys, John W., Drake, Ellet H., and Smith, F.: Survival Rates After Acute Myocardial Infarction With Long Term Anticoagulant Therapy, *Circulation* 14:254, 1956.
3. Wright, I. S., Marple, C. D., and Beck, D. F.: Myocardial Infarction and Treatment with Anticoagulants; Study of 1031 Cases, New York, Grune and Stratton, Inc., 1954.
4. Millikan, Clark H., Siekert, Robert G., and Whisnant, Jack P.: Anticoagulant Therapy in Cerebral Vascular Disease—Current Status, *J.A.M.A.* 166:587.

### Discussion

ROBERT M. ROY, M.D., Nashville: The use of short-term anticoagulant therapy in acute myocardial infarction has been generally accepted. In addition to Dr. Friedman, there are others who believe in prophylactic anticoagulant therapy in coronary and cerebrovascular disease. President Eisenhower has been on this program since his coronary, and until the etiology of atherosclerosis is defined, we will need to use some such indirect approach.

As Dr. Friedman has pointed out, this series is too small for analysis. Indeed, it is difficult for a single group to acquire enough cases of long-term therapy. To date, evaluation of collective studies do pretty well confirm Dr. Friedman's opinion of the worthiness of such a program.

There are several aspects I would like to touch upon briefly to point up the uniqueness of this disease and our approach to it.

Atherosclerosis is unique in that it usually gives rise to major trouble only when a complication such as thrombosis has taken place. The natural history of atherosclerotic vascular disease is such that once a thrombus has formed additional ones are prone to follow. In no other major cause of death are we given warnings such as bouts of cerebral vascular insufficiency to herald approaching disaster. The same holds true for myocardial infarction and embolic phenomena arising from rheumatic or fibrillating hearts.

Our approach to coagulation has been unique, and perhaps even backwards. We have volumes on advances in hemorrhagic conditions or faulty coagulation yet practically no knowledge of the why and wherefore of spontaneous intravascular clotting.

Our use of anticoagulants is unique. Dicumarol once offered an agricultural problem, because cows which ate it in spoiled sweet clover were poisoned and developed hemorrhagic manifestations. The drug that Dr. Friedman has chosen, Warfarin, was actually a rat poison and here we are today dishing it out as medicine.

I am essentially in agreement with Dr. Friedman that in the absence of a better weapon, long-term anticoagulants have much to offer. The particular anticoagulant is not as important as the physician's experience and care with it. There are a few general rules that bear watching;—there is no absolute level of "prothrombin time" at which thrombosis may not occur and, on the other hand, there are hemorrhages with prothrombin times of less than 20 seconds which is generally considered to be a safe figure. Nearly any type of bleeding may appear, especially with

over-zealous or careless therapy. We should watch most closely for hematuria and ecchymoses. Most series quote an incidence of 3% for significant hemorrhagic accidents which is much less than the chance of re-occurrence of cerebral or coronary thrombosis.

Contemplated use of these drugs in either cerebral or myocardial disease makes accurate diagnosis an absolute necessity. They are definitely contra-indicated, for example, in cerebral hemorrhage which may closely mimic cerebral thrombosis. Pericarditis, when mistaken for myocardial infarction and treated with anticoagulants, has been complicated by hemorrhagic pericardial effusion and adhesive pericarditis. Bouts of cerebral insufficiency related to the basilar-vertebral system require more urgent therapy than carotid insufficiency. The contra-indications are probably more easily decided than the indications, and I do not think we have yet acquired a panacea for atherosclerotic vascular disease. Larger studies do make this type of therapy appear promising, and I would like to congratulate Dr. Friedman on his interest and efforts.

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**Diagnosis of Ventricular Septal Defects. Mary Allen Engle, M.D., Dis. Chest 25:71, 1959.**

Formerly ventricular septal defects have generally been regarded as benign lesions. During the past 10 years it has been recognized that cardiac anomaly may be associated with cardiomegaly, cardiac disability, and premature death. The development of surgical technics to close such defects makes correct early diagnosis important.

The features of ventricular septal defect vary somewhat with age. The morbidity and mortality is greatest during infancy. There may be low birth weight, poor weight gain, poor sucking and easy fatigability. Respiratory distress, cough, aphonic cry, and susceptibility to respiratory infection may be present. The above symptoms are common to infants with other large left to right shunts, (interauricular, and aortic-pulmonary shunt). The differentiation of the level of the shunt may be indicated by the relative enlargement of the left and right ventricles, aorta, and pulmonary artery. In interatrial shunts there is a considerable enlargement of the pulmonary artery and its major branches and enlargement of the right ventricle. The electrocardiogram may show a right ventricular conduction disturbance. The left ventricle and aorta are small. Interventricular shunt is characterized by considerable left ventricular enlargement and a small aorta. The electrocardiogram shows left ventricular hypertrophy, sometime with partial RBBB over the distended right ventricle. Aortic pulmonary shunts are characterized by enlargement of the left ventricle, aorta, and pulmonary artery. In ventricular septal defect the heart is over-active and due to enlargement there is a precordial

bulge. A course systolic thrill is palpable in the left peristernal area in the third and fifth interspaces, and a long, loud, harsh systolic murmur is heard with maximum intensity in the same area. The pulmonary second sound may be split and is considerably louder than the aortic second sound. The peripheral pulses may be of small volume.

Diagnosis on basis of the above findings is usually possible. Corroborative evidence is best obtained by cardiac catheterization demonstrating increased oxygen saturation and increased pressure in the right ventricle. Angiocardiograph is usually of little aid except to demonstrate lesions other than interventricular defects in infants.

In childhood symptomatology is less severe. Growth retardation and precordial bulge may still be evident. In spite of considerable cardiomegaly there may be little exertional dyspnea. The other diagnostic features are as in infancy.

During adolescence and childhood symptoms may be mild due to smaller shunts or modified by concurrent pulmonary vascular disease. The latter may dampen or reverse the left to right shunt and there may be a loud banging pulmonary second sound followed by a soft blowing diastolic murmur of pulmonary insufficiency. Symptoms if present are dyspnea and fatigue on exertion. A right to left shunt can sometimes be demonstrated by angiocardiography or by brachial arterial saturations (placing patient in inoperable group at present time).

One should examine data carefully to exclude additional anomalies preoperatively. (Abstracted for the Middle Tennessee Heart Association by Fred D. Ownby, M.D., Nashville.)



The cause of cardiospasm is unknown, and there is controversy over whether the disturbance is based on anatomic disease or disturbed function. There is ample evidence as related to the gastrointestinal tract, of dysfunction of the autonomic nervous system under stress with concomitant manifestations of disease. It therefore seems reasonable that such stress may well be a factor in the etiology of cardiospasm.

## Psychosomatic Correlations in Cardiospasm\*

SAMUEL PASTER, M.D., Memphis, Tenn.

One of the most controversial subjects in the group of gastrointestinal disorders centers around the phenomenon of cardiospasm. Cardiospasm constitutes the most frequent type of esophageal dysfunction. Numerous theories have been proposed in an attempt to shed light on the origin of this disease. Its etiology, however, still remains obscure. Depending upon the mechanism believed to be involved in the process, this condition has been termed achalasia of the cardia, simple ectasia, mega-esophagus, idiopathic dilatation, pre-ventriculosis of the esophagus and phrenospasm.

The esophagus, including the region of the cardiac sphincter, has a double nerve supply, the sympathetic with its relay station in the extraspinal ganglia, and the vagus with its relay in the ganglion cells of Auerbach or the myenteric plexus. Hurst<sup>1</sup> demonstrated that stimulation of the sympathetic supply leads to spasm of the sphincter and that stimulation of the vagus brings about its relaxation. Division of both vagi prevents the normal relaxation of the sphincter with consequent dilatation of the esophagus. However, the myenteric plexus may, after a while, take over this function. Cannon postulated that the closure of the sphincter, when the stomach contains food, was achieved through the action of Auerbach's plexus stimulated by the hydrochloric acid of the gastric juice.

In cardiospasm the gastric end of the esophagus is obstructed. Willis, who was the first to describe the phenomenon of cardiospasm, and later Einhorn and Hurst, explained the obstruction as being due to the absence of relaxation, which is in turn

due to disease of the myenteric plexus. Lendrum confirmed the work of Hurst in his pathologic studies in which he demonstrated degeneration of the myenteric plexus.

Spasm as the cause of the disease was favored by Knight, who, experimenting with cats, produced sphincteric contractions by sympathetic stimulation, and relaxation by irritating the vagus. He also produced cardiospasm by bilateral section of the vagus and prevented this effect by concomitant section of the sympathetic. The opinion that cardiospasm was caused by overstimulation of the sympathetic is also voiced by Myers and Von Bergman. Unfortunately, sympathectomy as a therapeutic measure has not been proved successful in humans.

Jackson, Sauerbruch, and Hecker believed that the obstruction was the result of spasm of the muscle bundles of the diaphragm which encircles the esophagus at the hiatus. Mosher advanced the theory of diaphragmatic ptosis. Moore and Vinson claimed that kinking of the esophagus is responsible for the obstruction. Anomalous length of the esophagus, chronic inflammatory changes, degenerative changes as result of pressure, fibrosis of the esophageal wall, pressure of the lung tips, allergy, and finally vitamin B deficiency have also been advanced as the possible causes of this condition. Domm, Waterman and Rogers<sup>2</sup> underscore that achalasia is not a psychogenic condition. Yet, at the same time, they admit that its cause is quite unknown.

With the rise of interest in the psychosomatic concept in medicine, psychologic factors began to assume a distinctive position in the array of theories, comprising the etiologic background of cardiospasm. The literature on the subject is meager. Win-

\*Read at the meeting of the Tennessee Psychiatric Association, April 14, 1959, Memphis, Tenn.



kelstein<sup>3</sup> stresses the point that cardiospasm is a psychosomatic disorder in which emotional disturbances may initiate and carry on the disease. He claims that psychotherapy is not only of great value in all cases of cardiospasm, but that it may even prove curative in very early cases. Weiss and English<sup>4</sup> state that cardiospasm often arises coincidentally with an emotional conflict. Browne and McHardy,<sup>5</sup> having reviewed the literature, conclude that psychogenic factors enjoy a distinctive position in this disorder.

The following study is based on the psychiatric interviews of 4 male patients referred for consultation by the chief of thoracic surgery section of Kennedy Veterans Hospital, and one female patient referred by a local internist for psychiatric evaluation.

### Case Studies

*Case 1.* This was a 53 year old woman who had had difficulty in swallowing for a period of at least 3 years, and had been examined and treated by many doctors including specialists in the East. Despite medical treatment, the condition had grown progressively worse. She regurgitated most of her food and was becoming more and more emaciated.

During the interview she appeared very much depressed. She ascribed her depressive mood to the obvious fact that she was gradually starving to death. She admitted, however, that she had always been nervous and highstrung. She claimed to be happily married, and was the mother of 4 grown children, all married. The husband was described as a dominant personality who had given her a sense of security. An older brother and a younger sister of the patient were severe alcoholics. She had been very much attached to her father and was in turn, his favorite child. "I strove for Daddy. I wanted him to be proud of me." Her father committed suicide by jumping off a bridge, and following this the patient remained deeply depressed for months. She became seclusive, disinterested in things and felt that life wasn't worth while. The father left a substantial inheritance and the family was financially secure.

The patient's relationship with her mother had been a stormy one. "Daddy adored mother, placed her on a pedestal. They liked to travel together and left us children behind. Mother was lovely to look at. She loved gay parties and ruled the roost. She protected herself, shielded herself from ugliness of life. I was never mother's favorite. She always corrected me. I remember when I was a little girl talking happily, mother would catch my hand and say people would hear

us. It seemed I was always the one she corrected. She was never ugly. But I had a feeling that I was not her favorite. I think I was in love with my father. I mean I loved him. I idealized him. I made my father a promise I'd take care of mother. When tragedy hit her with father's death, she appeared brave and courageous. Five years ago Mother had a stroke. She became confused, wandered about the house aimlessly. I remembered my promise and had her moved in with us. I felt she belonged with me. I felt that I would be very unhappy if I gave her up. I loved my father so much and because I loved him I wanted to take care of her. Four years ago mother became very much confused. She hit me. I cried, "Oh God what shall I do?" I realized that she was in command. She knew she was supreme. I struck her back and held her hands. I said, "Darling this must never happen again." She never struck me again. I was shocked that I hit my mother. I realized that I couldn't take care of her unless I was in command. When I looked at her I could feel my childhood fear of her. It was a horrible ordeal. It was at that time I noticed that I couldn't swallow. I felt so utterly useless, drained of life, weak. I realized that because of mother I missed a lot of pleasure and joys—all because of a sense of duty. That night I dreamed that mother and I were in a sand pit. There was a venomous snake in her lap. I wanted to destroy it. But she either consumed it, and all that was left of it was the head, tail and bones. I was so shocked that she could do a thing like that. Mother must have been stronger than daddy (?)."

This patient was seen once more after she had been operated on. She was quite relaxed. She seemed very much relieved when she learned that while she had been in the hospital, her brother had arranged to have their mother live with him. She said: "I have the most wonderful husband in the world. I used to resent him when he would say 'I don't know why you should bear the burden,' but now we could really live again and at last enjoy our privacy."

*Case 2.* A 28 year old white male veteran was admitted to Kennedy V.A. Hospital complaining of difficulty in swallowing.

A barium study and later esophagoscopy revealed a narrowing of the cardia and a dilatation of the esophagus above the region of the narrowing, 4.5 cm. in diameter. Esophageal contractions were weak and were limited to the region above the widened area. There was no evidence of stricture. The patient was given a course of 14 dilatations. This course of treatment as well as sedation produced no change in his condition.

During the psychiatric interview the patient appeared very quiet and meek. He spoke in a subdued colorless tone of voice without any overt display of emotion. He related that he was the oldest of three siblings. His mother died when he was 6 years old. Following her death his father abandoned the family. The patient's two

sisters were reared by his grandfather. The patient went to live with a woman who had, many years ago, also reared his mother. This woman died two years later and the boy went to live with that woman's son. The latter soon sent him to an orphanage where he stayed one year. He was then placed with a farmer in whose home he remained until the age of twenty. During all of his free time he worked on the farm.

At the age of 21 he married. His relationship with his wife has been a happy one. In 1942, he was drafted. He was sent to the Southwest Pacific area with combat engineers, and went through the combat experiences apparently unscathed. "It didn't bother me much." When he returned home his old employer, the owner of an automobile accessories shop, offered him his old job. The patient realized that he was given the job on the strength of his war service inasmuch as he actually was not needed there. Two weeks later his employer was killed in an automobile accident. Following the death of his employer he became aware of his difficulty in swallowing food. This was, in essence, the story of the patient given during the first interview.

Though one could easily conceive of the drama and pathos involved in the life of this man, no impression of any emotional upheaval was conveyed by the unperturbed manner in which he related his story. He was especially apologetic when discussing the fact that his father had abandoned the family and declared that he had nothing against him. Following this preliminary interview, in a state of consciousness, a series of interviews were had with the patient under Sodium Pentothal narcosis. He was asked to associate freely and verbalize the thoughts that entered his consciousness. Under the influence of the drug he relaxed and with some animation began: "I remember my mother dying. I broke down and cried. A lady took me over. Then she died. I had to work day in and day out. I helped make up beds. I went out with a farmer as a farmer's hand. I didn't want to stay in the orphans' home. I'd heard wild stories about such homes and was afraid. I worked hard and tried to be as good as I could so they would keep me. I heard little about my father. He didn't care anything about us. Seeing him upsets me. He left three small children . . . no money to provide for them. Naturally you would feel hard against him. . . ."

During the second interview, he broke out into a violent tirade against his father: "If I could shoot him I'd probably do it. I thought many times of killing him. But I felt terribly guilty over it. If you had a father who left you how would you feel? He was running around with women. He was stepping out. If he had taken care of mother, as he should, she would have been alive today."

During the third interview, he said: "I didn't sleep last night. I thought of the woman in the boarding house. She was kind to me. She died

and her son took me over. I felt like a lost sheep. I thought of my mother. She was in bed for two years. Before she died she told me we were going to have a rough time. She used to say, 'Keep a straight life, for the benefit of God.' Father was drunk most of the time. He ran around with women. When mother died, he took off. I would skin his bald head if I could. Do I want to kill him? I am a Christian. In Sunday School they taught me to be good. I'd like to beat him up though. It makes me feel guilty. If anyone deserves a beating, he does, the scoundrel—to go off and leave three little kids. . . ."

During the fourth interview, he continued: "I remember my first day in school. I cried, as usual. I didn't have clothes like the other children. I was an orphan. No one asked what I wanted. If it's big I wore it and if it didn't fit, I wore it too. I did a lot of work all week plowing behind a mule and the farmer gave me 25¢ for it on Sunday. Yet I was thankful. He kept me out of an orphans' home."

During the fifth interview, he again began to talk about his father: "He don't seem like a man I'd like to meet on the street. He wasn't good to my mother and he just let her lay and die. He wasn't any good. He swindled everybody and then took off to Detroit. The Bible says you should obey your father. I tried my best. He left us when I was six years old. One sister was four and my baby sister was just born. I don't feel I had a father. I have a terrible feeling against him. But when I saw him recently, I was polite. I learned to take a great deal in my life and it takes a long time before I get mad."

The three other male patients were also interviewed both during the state of full consciousness and under the influence of Sodium Pentothal. The histories of all abounded in morbidity. The second patient's early life was steeped in an atmosphere of severe discipline imposed by a domineering father. The third patient, who had lost his mother when he was five years old, stated: "When she died I lost everything I ever had." His father soon married a widow who had six small children of her own and the patient was completely neglected.

The fourth veteran told a story of a turbulent father-mother relationship. His parents favored his sister and he considered himself to be alone in the world. This man worked on a dragline and his version of how he developed a cardiospasm is interesting. During his work he often had to siphon off oil. "I was always afraid I might



swallow some of it and sometimes I did swallow some."

The second patient described his personality as follows, "I am bashful and sensitive. . . . I take things seriously. I am a follower. I just haven't got what it takes. I never had an argument. I've never been in a fight. I do get mad, but don't say nothin' about it and go on my way. . . ."

The third patient stated, "I generally follow the crowd. I never did fight. I never gave no man cause to call me bad names. I never hold nothin' against nobody. I was always a good kid!"

The fourth patient characterized himself as follows, "I am a quiet boy. I try to be with people that don't tear up the place. I've always felt it didn't pay to be rough and ready." Concerning possible marriage he said, "I just can't make up my mind." He stated that he preferred to remain at home and help out his mother.

The female patient described herself as follows, "I have always been insecure and very conscientious. I am devoted and faithful. I can't remember ever having lost my temper. I always strive to please. I've always been conscious of a conflict within me of good against evil, and as a child resolved to be good."

None of these patients expressed any feelings of hostility during the regular interviews. Under narcosis, however, there was in each case an upsurge of emotion. Each of the patients condemned in strong terms the relatives and others whom they had held responsible for their deprivations and disappointments in life.

### Discussion and Conclusions

The personalities of five patients suffering from chronic cardiospasm were studied by means of the direct interview and, with the exception of the woman, also in a state of narcosis induced by Pentothal Sodium. This study revealed certain significant psychologic features common to the five patients. They were all quiet, meek and unassuming individuals who made a conscious effort to submerge their individuality. Each one manifested a sense of resignation as a reaction to the deprivations and frustrations they had encountered in the early period of their life. Unconsciously, how-

ever, each one remained rebellious, as if to say, "I can't swallow the hardships life has imposed upon me." There was evidence of a strong urge to retaliate, a feeling repressed into the subconscious regions of the mind by an intense sense of guilt.

We witnessed the emergence of the emotional upheaval of our patients under the influence of Pentothal Sodium. What has been the outlet of all the fear and rage that the patients have been experiencing all these years as a reaction to their chronic frustrations? It is no longer a disputed contention that the vegetative organs respond to psychic stimuli. Weeping, blushing, changes in the pulse rate, and blood pressure, variations in the secretions of the gastric mucosa, the diarrhea are common manifestations of a disturbed psycho-physiologic equilibrium. We have learned from the work of Wolff<sup>4</sup> and others that chronic psychic tensions, causing an irritation of the subcortical centers, may, through the parasympathetic pathways, produce chronic functional changes which, in turn, may lead to physical pathologic changes in certain organs.

While constitutional or acquired predisposition of various organs to disease must be considered, our state of knowledge is at present too meager to enable us to state exactly why different organs are affected in different individuals under the prolonged impact of tension. Some students of the problem contend that a direct correlation exists between the psychic conflict and the specific organ affected. They see a definite meaning in the disorder in terms of behavior. According to Weiss and English, cardiospasm represents symbolically an unconscious conflict, which strives to solve itself in a compromise between the gratification of certain forbidden impulses and the rejection of these impulses by another part of the personality. Whether such direct symbolic connection really exists or whether the disorder is merely an end result of a complicated chain of reactions that have, as their first link, an emotional conflict, it is obvious that psychic tensions play an important role in the disease process. It is especially significant that these disorders manifest themselves intermittently and recur usually under renewed psychic upheavals.<sup>7, 8</sup>



No one can deny that the treatment in the established cases of cardiospasm consists of either mechanical dilatation or surgical interference. If we concede, however, that cardiospasm is at least partly emotionally conditioned, then thorough psychologic study and treatment seem to be an essential part in the management of this disease.

### References

1. Hurst, A.: Nervous disorders of Swallowing, *J. Laryng. & Otol.* 58:60, 1943.
2. Domm, S. E., Waterman, D. H. and Rogers, W. K.: Cardiospasm, *J. Tennessee S.M.A.*, 1959.
3. Winkelstein, A.: Some General Observations on Cardiospasm, *M. Clin. North America* 28:589, May, 1944.
4. Weiss, E. and English, O. S.: Psychosomatic Medicine, P. 229, W. B. Saunders Co., Phila. & London, 1945.
5. Browne, D. C. and McHardy: Cardiospasm, A Review of the Literature, *J. Arkansas M. Soc.* 41:95, 1944.
6. Wolff, H.: Disturbances of Gastrointestinal Function in Relation to Personality Disorders, *Ann. New York Acad. Sc.* 44:567, 1943.
7. Paster, S.: General Aspects of Psychosomatic Medicine, *Rev. Gastroenterol.* 14:391, 1947.
8. Paster, S.: Psychogenic Factors in Cardiospasm, *Memphis Med. J.*, 1949.

### Evaluation of the Transaminase Test: Clarence M. Agress, *Am. J. Cardiol.* 3:74, 1958.

Since the report by Ladue, et al. on serum glutamic oxalacetic transaminase in human acute myocardial infarction, numerous experimental and clinical studies have appeared. SGO-T levels have been determined in 1,255 cases of acute myocardial infarction proved in the reports to date by a characteristic clinical picture and a diagnostic electrocardiographic pattern. In 1,214, or all but 41 cases, the levels have exceeded the normal range with a resultant accuracy of 96.9 per cent. The correlation of SGO-T level with autopsy evidence has so far been over 98 per cent.

Experimentally, SGO-T has been found reliable in distinguishing ischemia from infarction. In the cases said to have angina, it is impossible to state the accuracy of the SGO-T test since only autopsy will settle the problem. There were 5 cases in which the clinical and SGO-T data were in disagreement and which came to autopsy, and in all 5 the autopsy supported the SGO-T diagnosis.

Serum GO-T determinations have proved valuable in detecting active myocarditis, especially in rheumatic fever patients. In the differentiation of pericarditis from myocardial infarction, a normal SGO-T titer is strong evidence that myocardial infarction is absent. From clinical and experimental data it seems that SGO-T is elevated only in severe pericarditis where there is subepicardial myocardial necrosis.

There were 49 cases of pulmonary embolism, 12 showed elevated SGO-T levels. The distinguishing features from myocardial infarction were that the elevations are minimal (rarely over 85 units), they tend to occur after the third day and they are usually accompanied by a rise in the icteric index and chest X-ray changes.

Serum GO-T may be significantly elevated in the presence of sustained cardiac arrhythmias when the rate exceeds 180 per minute.

Various skeletal muscle disorders may raise the

SGO-T. These include trauma, muscular dystrophies where the values may remain high for months, dermatomyositis, myoglobinuria, polymyositis, etc.

In central nervous system disorders it has been found that conditions which elevate GO-T in the serum do not pass the blood-brain barrier and that, therefore, elevated GO-T levels in the spinal fluid reflect only diseases in the central nervous system itself; disease producing cerebral infarction may raise the level of GO-T in the serum, sometimes for many days, as well as the level in the spinal fluid, although there is no correlation between the two.

In hepatic diseases SGO-T has shown to be a sensitive test. It may detect hepatitis of all types before icterus appears, such as in viral hepatitis of mononucleosis or in chlorpromazine sensitivity, in determining the severity and course of the disease, and in the decision when ambulation is safe from relapse. It is valuable in distinguishing intrahepatic and extrahepatic jaundice, since in the latter the peak determinations rarely exceed 300 units whereas elevations in intrahepatic reach very high levels.

Acute pancreatitis frequently elevates the SGO-T levels. Certain drugs as aspirin and codeine but not digitalis may cause a rise in SGO-T.

Other enzyme tests are now being investigated. Lactic dehydrogenase (LDH) is useful in the diagnosis of myocardial infarction in those instances where several days have elapsed from the onset, since it often remains elevated several days longer than SGO-T. Pyruvic transaminase (GP-T) is helpful in differentiating hepatic and myocardial injury, since it is more sensitive to liver cell injury than myocardial infarction.

It may be noted that the SGO-T values remain normal in the presence of cardiac failure. Of 98 reported cases only 3 had elevations. (Abstracted for the Middle Tennessee Heart Association by Marvin J. Rosenblum, M.D., Nashville.)

The prompt and early diagnosis of occlusive disease of the peripheral arteries is so important at the present time because of the satisfactory results from surgical treatment.

# The Surgery of Peripheral Arterial Disease Diagnosis And Available Technic With Illustrative Case Reports

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The history of the development of arterial surgery has been frequently and adequately recorded. It is a continuing story. Diagnostic methods have changed but little in recent years. The simplest often prove the most useful. On the other hand the surgical approach to these problems has undergone considerable modification. This applies in particular to the direct surgery of peripheral arteries, large or small. For the purposes of this discussion the abdominal, but not the thoracic, aorta will be included by the term "peripheral artery."

As shall be emphasized, the early recognition of peripheral arterial disease is essential if good results are to be achieved from surgical intervention. Our intent, therefore, is to concentrate on this aspect of the subject and to illustrate with a few selected cases.

## Diagnosis

### History

A careful record of the symptoms manifested by the patient with peripheral arterial disease will of itself indicate the diagnosis with a reasonable degree of accuracy.

*Age at Onset.* The young man or woman with a variable but progressive history will generally fall into the category of, (1) thromboangiitis obliterans or other inflammatory arterial disease, (2) vasospastic diseases such as Raynaud's disease (or phenomenon as the case may be). In the middle age ranges (up to 50 or 60), atherosclerotic lesions of major peripheral vessels will predominate (subintimal). The older age groups will exhibit a preponderance of arteriosclerosis (medial sclerosis) involving, in addition to the major vessels, the smaller distal arteries ("run-off").

It is the patient with relatively pure atherosclerotic peripheral arterial disease who is, at the same time, most amenable to surgical relief, but whose occlusive process may be quite difficult to diagnose.

*Pain.* (Fig. 1.) The typical claudication

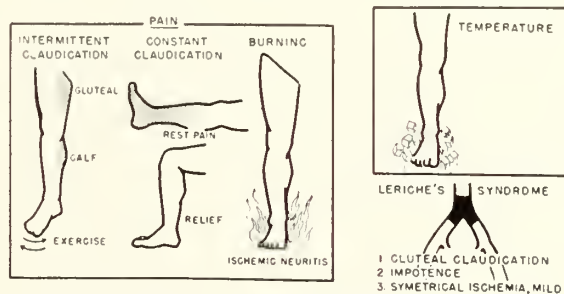


FIG. 1. Diagrammatic illustration of the symptoms of peripheral arterial occlusive disease, lower extremity. (Full discussion in text.) The burning discomfort of ischemic neuritis, left, is identical with that noted under a pressure point from an incorrectly applied cast. Leriche's syndrome with its triad of symptoms is depicted at the lower right.

of the calf muscles is familiar. Overlooked at times is gluteal claudication secondary to occlusive processes involving the terminal aorta or iliac arteries, "ocular claudication" with occlusion of major cerebral arteries, and claudication in the upper extremity seen most frequently with occlusion of major branches of the aorta (aortic arch syndrome). Patients with gluteal claudication have been treated for low back mechanical disorders and, on occasion, explored for ruptured intervertebral discs. The distance at which claudication occurs is of some help in quantitating the occlusive process, dependent to an extent on temperature and terrain. Another type of pain experienced is that of a burning discomfort associated with ischemic neuritis. "Rest pain," or that occurring with the patient in

recumbency, is secondary to a decreased head of pressure and may at times be relieved by elevating the head of the bed on blocks.

**Temperature.** Coolness of the affected extremity under proper conditions is an obvious symptom. Its association with increased moisture of the skin may indicate overactivity of the sympathetic nervous system. This does not rule out occlusive disease as the underlying problem. A family history of vascular disease may serve as corroborative evidence. The past history may reveal other evidences of arterial disease (a previous coronary occlusion, cerebral symptoms, migratory phlebitis as with Buerger's disease), or point to contributing causes (dietary history plus weight gain or loss, the use of tobacco, rheumatic heart disease).

#### Physical Examination (Fig. 2)

The pulse at various locations should be palpated with a greater degree of frequency in routine "check-ups." In this regard it should be recalled that the dorsalis pedis artery may not be palpable in 10 to 15% of normal individuals. The best position for palpation of the popliteal artery is with the patient prone and the leg flexed on the thigh moderately so as to relax the popliteal fascia. (Fig. 2.) It is foolish to attempt the

flow are qualitative. The instrument is not an expensive one and is as easy to use as the sphygmomanometer. Palpation of the internal carotid artery within the pharynx is unreliable when cerebral symptoms are being investigated.

**Skin temperatures** may be appreciably different in the lower extremities and this fact should be recorded along with a statement as to the relative moistness. An accurate evaluation cannot be obtained except under controlled and usually impractical conditions. **Skin color** varies with the condition under which the patient is studied. Acute occlusive processes may be associated with mottled cyanosis. (Fig. 2, Center.) The skin may be blanched, even in the dependent position, with severe chronic occlusion. The following simple test has some quantitative significance, both as to the degree of occlusion and the prognosis. (Fig. 2, Right.)

With the patient supine, raise the lower extremity to right angles to the trunk and record with a stop watch the time in seconds at which blanching of the foot occurs. Normally there should be none. Next, place the extremity in a dependent position and record, (1) the time at which a flush appears (reactive hyperemia), and (2) venous filling time. If the first value is less than 20 seconds and the venous filling time less than 30 seconds (in the absence of varicosities), some type of surgical approach will almost certainly be beneficial. This test does not, of course, apply to acute occlusive processes.

**Atrophy**, first of the skin and skin appendages and then of the subcutaneous tissues, occurs as the degree of arterial occlusion progresses. In its most severe form it is referred to as "skeletonization." In addition to simple inspection, a tape measure will easily yield some information as to the extent of the latter process, particularly if the problem is limited to one side and comparative measurements can be obtained. **Neurologic deficits** in the absence of cerebral disease are more prone to be associated with acute occlusive processes. The level to which they extend, along with color changes, are indicative of the level of occlusion.

The evaluation of the patient's general physical condition (Fig. 3, C) should be conducted with the idea that his vascular disease may be widespread. The establishment of this fact may contraindicate a direct at-

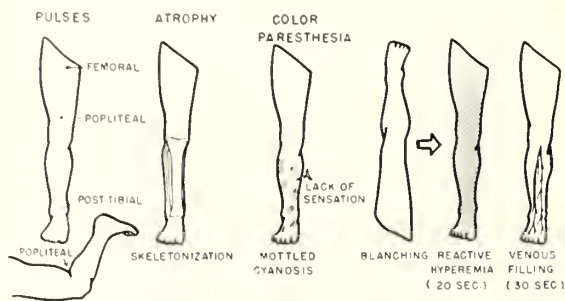


FIG. 2. Physical findings associated with peripheral arterial occlusive disease. (Full discussion in text.) The proper position for palpating the popliteal pulse, lower left. The physical findings with acute occlusion, center. Atrophic changes, left of center, are first manifest in the skin and its appendages.

evaluation of pulses in the lower extremity with the patient sitting because of the effect of pressure on the thigh and thus on the pulse pressure. The use of an oscillometer as an adjunct to digital palpation is frequently of assistance even though the units measuring the degree of pulsatile arterial



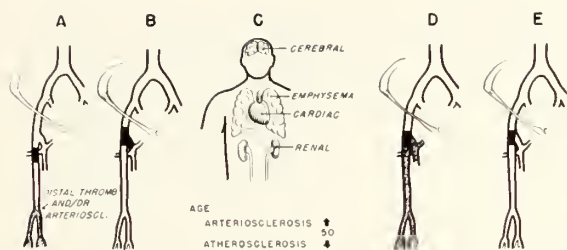


FIG. 3. The occlusive process in peripheral arteries; indications for and contraindications to surgical treatment. (Full discussion in text.) (A) Occlusion of the superficial femoral artery with associated distal arterial occlusion. (B) Early occlusion of the bifurcation of the femoral artery without peripheral occlusion. (C) Upper: Indicates diagrammatically the importance of associated disease in the treatment of peripheral arterial occlusion. Lower: The increasing incidence of arteriosclerosis (medial sclerosis) as a component part of peripheral arterial occlusive disease above the age of 50 is indicated. (D and E) Illustrate again the progressive distal thrombosis (D) which will occur with neglected arterial occlusive disease (superficial femoral artery, E).

tack on the specific peripheral arterial disease under consideration.

Any *variability of symptoms and findings* has generally been ascribed to intermittent arteriospasm. Though this may be true, the mistake of overlooking an underlying occlusive process in its relatively early and surgically correctable stage should not be made. The associated arteriospasm under these circumstances is related to the inflammation present in the region of the occlusive process and is on a reflex basis. In addition, small dissections beneath intimal plaques can account for transitory symptoms.

#### Adjunctive Studies

Numerous complicated instruments and procedures have been developed for the study of the peripheral circulatory status. Though some definitely have their place they lie primarily in the field of investigation and are not apropos this discussion. The use of the oscillometer has been previously mentioned as a practical aid in the evaluation of peripheral pulsatile arterial flow.

*Aortograms and arteriograms* now are not generally done preoperatively. Operative arteriograms to determine the status of the distal circulation are rather routinely performed at the time of exploration. Present evidence would indicate that the safest dyes are Hypaque and Renografin. Sensitivity studies do not seem to be of sufficient

accuracy to demand their use, particularly in light of the low incidence of complications with the dyes mentioned.

#### Treatment

*Conservative or Medical Treatment.* As stated elsewhere, cases of peripheral arterial occlusive disease may not be suitable for surgical intervention for a variety of reasons. However, the conservative or medical treatment of this problem is not the topic of this discussion. Simple measures, such as elevation of the head of the bed, may prove to be of value. The frequent misuse of drugs producing vasodilatation in the treatment of peripheral arterial disease should be mentioned. If the process is basically occlusive, the net effect may be to shunt blood away from the area where it is most needed. If it is an early occlusive process with a large element of associated arteriospasm, the temporary improvement obtained may lead to a sense of false security. In either event the golden opportunity for surgical correction may be lost.

*The Candidate for Peripheral Arterial Surgery.* It is obvious from the preceding discussion that many factors are involved. The *general physical condition* of the patient must warrant the doing of the procedure. The *occlusive process* should be in its earliest detectable stage. Ordinarily the patient will be in the middle age group with arterial occlusive disease primarily atherosclerotic in origin and central in location. (Fig. 3, B.) The patient with occlusion of both major and minor vessels, the latter either secondary to thrombosis or arteriosclerosis (Fig. 3, B), is not amenable to direct surgical attack (though, depending on the findings, sympathectomy may be of benefit). Here the *time interval* between diagnosis and treatment is of paramount importance. Inordinate delay may result in progressive thrombosis and/or sclerosis of the small distal vessels and an irretrievable situation. In the slang of the vascular surgeon, the "run-off" (patent distal vessels) must be adequate to support direct arterial surgery of any type. (Fig. 3, A and E.)

*Surgical Approaches.* The surgical approach to peripheral arterial occlusive disease must obviously be individual. Procedures utilized fall into four major cate-

gories:

(1) Excision of the diseased segment with replacement (Fig. 9). (2) "By-passing" of the diseased segment (Fig. 4, C). (3) The direct "unplugging" of an occluded segment (thrombendarterectomy) (Fig. 4, B). (4) Sympathectomy.

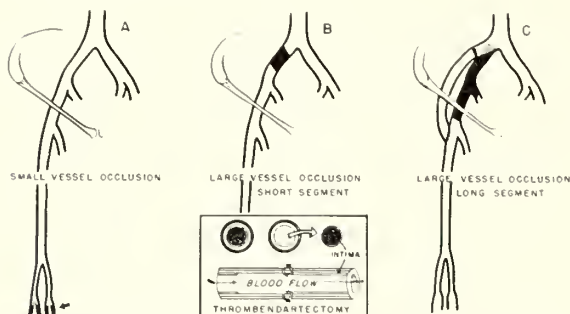


FIG. 4. Occlusive processes for which the various surgical approaches are indicated. (A) Sympathectomy only for small vessel occlusion if other findings compatible. (B) Thrombendarterectomy, illustrated in offset, for short segment occlusion. (C) By-pass grafting for a long occluded segment. In this case the anastomosis is end-to-end proximally and end-to-side distally. Most are done with two end-to-side anastomoses.

As dictated by the anatomic situation, these methods may be utilized singly or in combination. In general, thrombendarterectomy is ideal for short occluded arterial segments (Fig. 4, B), excision and replacement grafting best suited for aneurysms (Fig. 9), and by-pass procedures with preservation of collaterals indicated for long occluded segments (Fig. 4, C). Sympathectomy is frequently combined with a direct approach. It may be used alone under proper circumstances with advanced disease of small arteries irrespective of associated occlusion of major arteries. (Fig. 4, A.)

**Arterial Grafts.** There remains little argument among vascular surgeons that the ideal graft for major arteries will be fabricated from a synthetic fiber.<sup>4,7-10</sup> Teflon by virtue of its complete "non-wettability" seems to be emerging as the material of choice.<sup>7-10</sup> When implanted it causes no tissue reaction of consequence and maintains its tensile strength at 100 percent. It is lined by an adherent neo-intima within 3 weeks, as compared to from 3 to 6 months for the best of the other synthetics. The choice of fabrication of the graft used for major arteries is in most hands a tight weave which almost abolishes "sweating" and the resulting necessity for blood re-

placement, and crimping of the graft to provide flexibility without attendant compression.<sup>9</sup> The proper graft for smaller arteries (such as the femoropopliteal area) remains debatable. The available experimental evidence would seem to indicate a superiority of autogenous vein grafts over any of the synthetic grafts.<sup>1,3,5,6</sup> That was true of a group of experimental by-pass grafts which we are to report on elsewhere.<sup>1</sup> However, Teflon grafts were not used and it is our feeling that a tightly woven graft of Teflon will prove to be comparable to an autogenous vein, and superior to a knitted graft for use in small arteries as well as large ones. A comparative study is now under way. Other materials have yielded either poor initial or poor long-term results. Par-enthetically, vein grafts will not dilate when used in small arteries.<sup>3,5,6</sup> This apparently is a result of the adequate surrounding tissue support.

*Freeze-dried arterial homografts*, widely used for a time, have fallen into disfavor because of the mounting number of reports of late degenerative changes.<sup>2</sup> Secondary occlusion or aneurysmal dilatation have resulted. The so-called "artery banks" are, for all practical purposes, a thing of the past.

*Thrombendarterectomy* (illustrated in Fig. 4, B) consists of the removal of the occluding "plug" with the dissection plane lying subintimally. It is, as indicated, ideally suited for short occluded arterial segments. The distal intima is sutured to the vessel wall in order to prevent a dissecting aneurysm.

*Sympathectomy.* There has recently been a revival of interest in sympathectomy, particularly as an adjunctive procedure. Its role as a primary procedure for arterial occlusive disease remains in doubt, but the work of Smithwick would indicate that it has its proper place.

## Results

The success of a direct surgical approach to peripheral arterial occlusive disease is dependent on many factors as outlined. Some cases are obviously not suitable for surgical treatment. All other factors being equal, the surgery of large peripheral arteries (aorto-iliac) yields a far greater number of good results (approximately 85%\*)



than is the case of vessels of smaller caliber (femoropopliteal, 50%\*).<sup>1,7-10</sup> Though late failures are usually due to progression of the underlying disease process, it would seem that the percentage of good results in the femoropopliteal region could be significantly improved. We are confident that with the proper attention to technical detail and the correct graft, this will prove to be true. For example, our use of experimental by-pass grafts of autogenous vein in the quite small femoral artery of the dog resulted in 100% patency (short term follow-up of from 2 to 8 months).<sup>1</sup>

### Case Reports

Case 1. (Fig. 5.) C.S., a 67 year old white

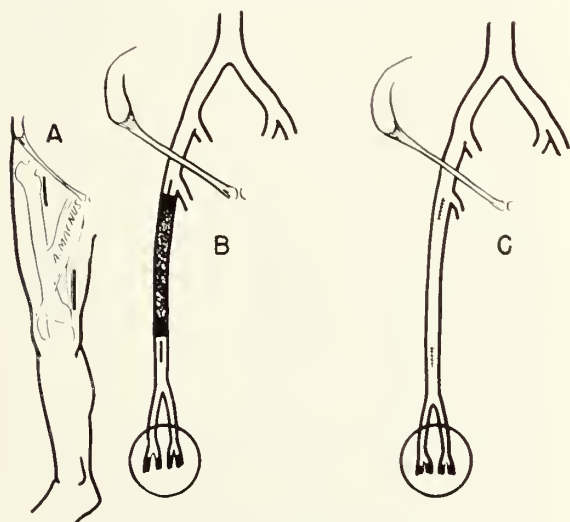


FIG. 5. (Case 1) Late femoral thrombendarterectomy with subsequent amputation.

woman, had had the sudden onset of symptoms of arterial insufficiency involving the right lower extremity 6 months prior to operation. She complained of intermittent claudication in the calf muscles following minimal exercise, rest pain, and coldness of the involved foot.

On examination no pulses were palpable below the femoral on the right. All were palpable on the left. Easily detectable atrophy of the right leg, pallor in any position, and a distinct coolness of the right foot and leg were present.

The femoral and popliteal arteries were exposed on February 12, 1958, through the incisions noted in figure 5, A. Areas of firm occlusion were noted at the origin of the superficial femoral artery and in the adductor canal (Fig. 5, B). Relatively soft but organized clot intervened.

Under the mistaken impression that the primary occlusion was the proximal one with the

problem distally being entirely secondary to thrombosis, the decision to attempt thrombendarterectomy with extraction of the distal thrombus was made. (Fig. 5, C.) It was felt, in addition, that a retrograde flushing through the posterior tibial artery might be of benefit. Unfortunately, the occlusive process in the adductor canal was also present and, in addition, no back-flow of consequence could be obtained from the popliteal artery. An associated lumbar sympathectomy was performed.

The segment in which thrombendarterectomy had been done failed to remain open in spite of anticoagulant therapy. A supracondylar amputation was performed four weeks later.

*Comment.* This case illustrates the disastrous results of procrastination in recommending an aggressive approach to the surgery of arterial occlusion. The rather sudden exacerbation of symptoms 6 months prior to operation was due to an acute thrombosis superimposed upon a chronic but incomplete occlusive process. As is to be anticipated in such cases, the distal "run-off" was lost by virtue of progressive thrombosis with organization. In view of the good circulatory status in the opposite member, we have good reason to believe that an early surgical approach to the occlusive process would have been successful. The procedure of choice in our hands would have been a femoropopliteal by-pass graft rather than thrombendarterectomy. A patent profundus femoris artery accounted for the avoidance of an even earlier amputation (Fig. 5, B).

Case 2. (Fig. 6.) E.E.T., a 56 year old white

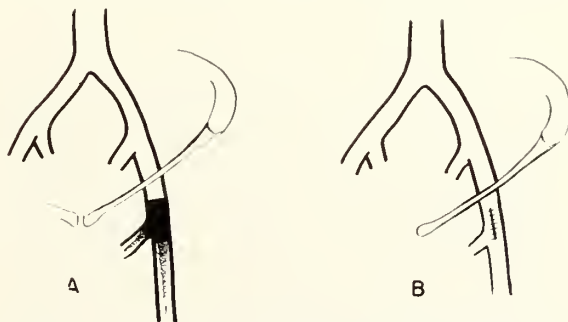


FIG. 6. (Case 2) Early femoral thrombendarterectomy and thrombectomy with successful outcome.

man, developed the acute onset of arterial insufficiency involving the left lower extremity 6 hours prior to surgical intervention on August 6, 1956. The findings were compatible with occlusion of the common femoral artery. No pulses were palpable below the femoral artery. Mottled cyanosis with coldness and a marked motor and sensory deficit extended to a level just above the knee. The findings (Fig. 6, A) were those of a chronic

\*The figures quoted are approximate averages of the combined experience of several institutions closely identified with vascular surgery.



occlusive process at the bifurcation of the femoral artery with insufficient narrowing to have produced prior symptoms and a superimposed thrombus with "tails" extending into both branches. The operation consisted of a thrombendarterectomy with extraction of the fresh thrombus (Fig. 6, B). The patient remains asymptomatic with good pedal pulsations two and one-half years later.

*Comment.* Early surgical intervention in this case of acute thrombosis at the bifurcation of the common femoral artery resulted in a normal extremity two and one-half years later. Distal thrombosis had not progressed sufficiently to compromise the "run-off." The short segment involved in the primary occlusive process was ideally suited to thrombendarterectomy.

Case 3. (Fig. 7.) E.W. is a white man, aged

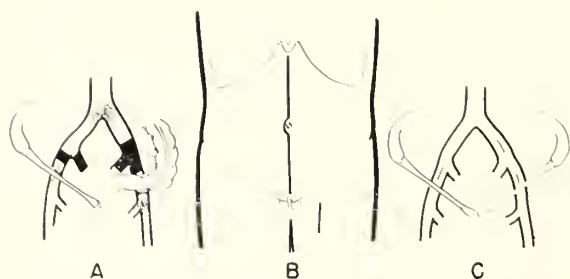


FIG. 7. (Case 3) Bilateral iliac thrombendarterectomy.

57. This physical education instructor had noted increasing intermittent claudication involving both lower extremities for one year. The discomfort was described as being located both in the calves and in the gluteal muscles. Claudication occurred on walking the distance of one-half block. The symptoms were described as being more marked on the left than on the right. The patient also complained of increasing impotence.

A weak femoral pulse was palpable on the left, but none distally. Weak pedal pulsations were palpable on the right. Oscillometric readings yielded a maximum deflection of two units in the right leg, less than one-half unit in the left. Otherwise no findings of significance related to arterial insufficiency were noted. It was felt that the occlusive process was most likely an incomplete one at the bifurcation of the aorta (Leriche's syndrome). (Fig. 1, Right.)

At operation on December 31, 1957, the findings, as illustrated in figure 7, A, were noted. The resemblance of the clinical picture to Leriche's syndrome resulted from the bilateral complete occlusion of the internal iliac arteries along with external iliac occlusion. Exposure was obtained through the incisions depicted in figure 7, B, a separate high thigh incision being required on the left. Operative arteriograms done on the left only revealed a good "run-off." The occlusive process was treated by thrombendarterectomy bi-

laterally through the arteriotomy incisions illustrated in figure 7, C.

*Comment.* This patient suffered from bilateral occlusive disease of the iliac arteries of relatively pure atherosclerotic origin. The distal vessels were normal to palpation and sympathectomy was thought unnecessary. The limited extent of the occlusive process on the right was ideally suited to thrombendarterectomy. The more extensive occlusion on the left, along with a thick mesocolon, made for a rather tedious procedure there, though the end result was good (Fig. 7, A, C). Our choice at present would be a by-pass graft. Slightly over one year after the operation, this patient was actively engaged (and participating) in physical education without claudication. The oscillometric indices were normal bilaterally.

Case 4. (Fig. 8.) W.L.C., a 64 year old white

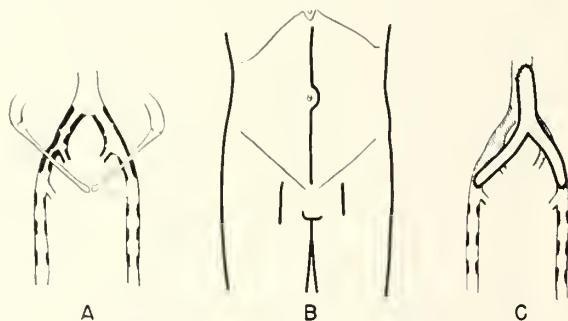


FIG. 8. (Case 4) Aortofemoral by-pass "Y" graft of crimped dacron.

man, had had intermittent claudication of increasing severity in both calves for one year. He also complained of associated coolness and increased moisture of his feet. The symptoms and findings were variable and remained so up to the time of surgical intervention. Both the dorsalis pedis and posterior tibial pulses were palpable bilaterally on most occasions. At other times they could not be palpated with certainty. Evidences of reflex sympathetic nervous system activity were invariably present on the latter occasions (cool, moist feet). The oscillometric indices below the knees ranged from two to three units on the left and from less than one to one and one-half on the right. The femoral artery pulses were weaker than normal bilaterally.

At the time of operation on August 21, 1958, diffuse disease of the iliac arteries was noted bilaterally (Fig. 8, A). Operative arteriograms revealed scattered areas of minimally diseased superficial femoral artery, but the "run-off" was excellent (Fig. 8, D). In view of the diffuse distribution of the process and the arteriospastic component to the clinical history, bilateral transperitoneal lumbar sympathectomy was performed.



FIG. 8, D. (Case 4) "Run-off" as demonstrated by operative arteriogram.

In addition, through the three incisions noted in figure 8, B, an end-to-side by-pass "Y" graft of crimped Dacron (aortofemoral) was inserted (Fig. 8, C). When last examined 7 months postoperatively, bounding pedal pulsations were noted bilaterally, both feet were warm and dry, and the oscillometric indices were normal.

*Comment.* It is somewhat unusual to see a "run-off" as good as was present in this case (Fig. 8, D) in this age group. We were also surprised at the marked variability of symptoms, though in younger persons with arterial occlusive disease, an arteriospastic component is not at all uncommon. The situation lent itself well to the use of an aortofemoral by-pass graft (Fig. 8, C).

Though crimped Dacron was used here, the preferable graft, as previously indicated, would appear to be one fabricated from Teflon.<sup>7,10</sup>

Case 5. (Fig. 9.) J.W.M., Jr., a 65 year old

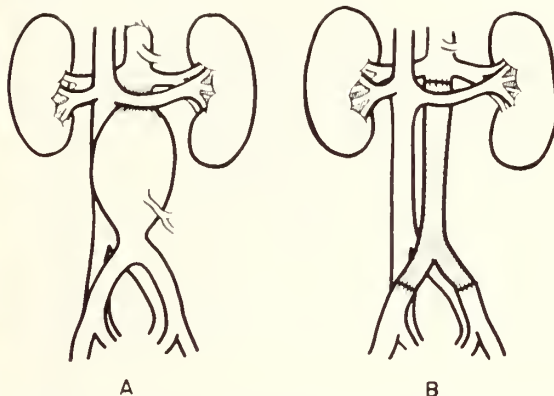


FIG. 9. (Case 5) Excision of abdominal aortic aneurysm and replacement with freeze-dried "Y" homograft.

white man, had had vague lower abdominal discomfort of increasing intensity for 3 months prior to admission to the hospital. He also described typical recurring attacks of biliary colic for one year and was known to have cholelithiasis proven by cholecystography. Palpation of his abdomen revealed the presence of a pulsatile mass. A plain film demonstrated calcification in the wall of what was clearly an aortic aneurysm.

The findings at the time of operation on May 25, 1956 are illustrated in figure 9, A. As is usual, the abdominal aortic aneurysm extended up to the level of the renal arteries, with the left renal vein stretched tightly over it. The segment involved was excised and replaced with a reconstituted freeze-dried arterial homograft (Fig. 9, B). A gallbladder containing numerous stones was also removed. The graft is functioning satisfactorily almost three years later.

*Comment.* The arterial homograft used in this case has yielded an entirely satisfactory early result. However, the late degenerative changes in such grafts are well documented.<sup>2</sup> In the absence of specific contraindications, aortic aneurysms should be routinely treated surgically. The mortality rate directly attributable to the aneurysm within one year of diagnosis in comparable untreated cases is much greater than the risk of surgery.

Case 6. (Fig. 10.) J.W., a 49 year old white man presented himself for examination with complaints referable to (1) his left upper extremity, and (2) cerebral symptoms. After first noting symptoms compatible with arterial insufficiency of the left upper extremity, an absent left radial pulse was discovered. Concurrently, cerebral symptoms appeared, consisting primarily of in-

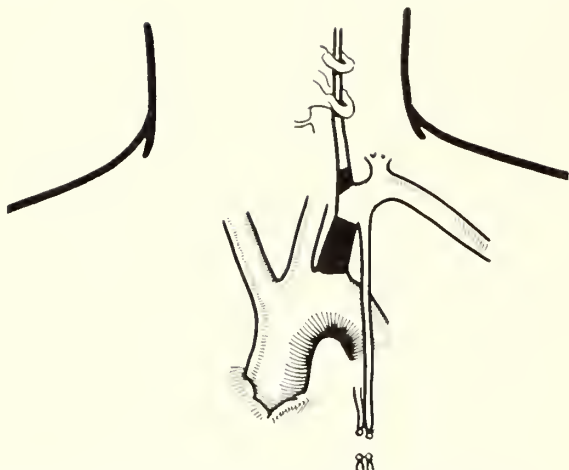


FIG. 10, A. (Case 6) Vertebral (and subclavian) thrombendarterectomy for cerebral ischemia.

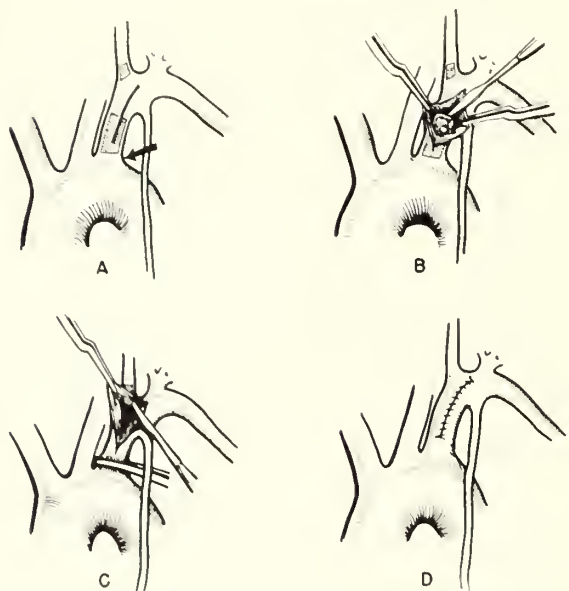


FIG. 10, B. (Case 6) Vertebral (and subclavian) thrombendarterectomy for cerebral ischemia.

creasing vertigo and unsteady gait, headache, and visual disturbances. The positive physical findings consisted of an absent left radial pulse, some atrophy of the left arm which was cooler than the right, and an unobtainable blood pressure in the left arm (right, 140/80). No specific neurologic deficit could be elicited. Because of recent interest in the incidence of occlusion of major vessels supplying the brain as the etiology of cerebral symptoms, and a recognition of the importance of the vertebral arteries, retrograde aortograms via the left femoral artery were obtained. These revealed occlusion of the left subclavian artery on the arch of the aorta and a questionable incomplete occlusion at the level of the bifurcation of the right innominate artery.

The left side of the arch of the aorta was exposed through a sternum splitting incision with associated resection of the medial portion of the left clavicle and extension of the sternum splitting

incision out into the third left intercostal space. Occluding atherosclerotic "plugs" were found at the origin of the left subclavian and vertebral arteries as illustrated in figure 10, A. These were removed by thrombendarterectomy through an arteriotomy incision in the subclavian artery (Fig. 10, B). A normal left radial pulse is present 2 years later and there has been no recurrence of cerebral symptoms.

*Comment.* Other than for the occluding "plugs" in the subclavian and vertebral arteries (Fig. 10, A), the vessels of the operative area were normal to palpation. A good back-flow was obtained from the vertebral artery after its orifice had been cleared (Fig. 10, C). The lack of a fixed "watershed" between the carotid and the vertebral arterial circulations has been demonstrated, both by arteriographic and postmortem studies, the circle of Willis notwithstanding (Fig. 11). The back-flow obtained origi-

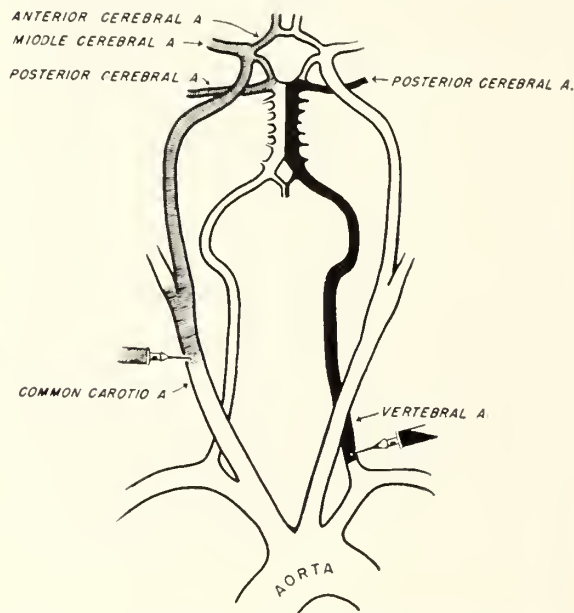


FIG. 11. The lack of a fixed "watershed" between the vertebral and carotid artery flows demonstrated by vertebral and carotid arteriograms. Diagrammatic illustration.

nated, therefore, from the opposite vertebral artery, even though it is thought to be somewhat narrowed at its origin.

This case represents a variant of the aortic arch syndrome (occlusion of its major branches) of atherosclerotic origin. It corroborates the importance of the contribution of the vertebral arteries to the cerebral circulation (Fig. 11), and was the first reported attempt to relieve cerebral ischemia by surgery of the vertebral (and subclavian) arteries alone. It serves to em-



phasize the fact that a surprisingly large percentage of patients with cerebral symptoms of vascular origin have occlusive lesions central in location and amenable to surgical relief. Here, as elsewhere, the occlusive process must be diagnosed before the "run-off" is lost. Lastly, this case illustrates the fact that the usual carotid and vertebral arteriograms may fail to visualize the more centrally located occlusive lesions. Retrograde aortography, as used in this instance, may prove to be more rewarding in the localization of central occlusion of the cerebral circulation.

### Summary

The favorable influence of the early diagnosis of peripheral arterial occlusive disease on its treatment has been emphasized. Available methods for surgical relief have been outlined and 6 illustrative cases presented.

### References

1. Cate, William R., Jr.: By-Pass Grafts in Small Arteries. An Experimental Comparison of Freeze-Dried Arterial Homografts, Autogenous Vein, and Crimped Dacron, *Am. Surgeon* (To be published).
2. Szilagy, D. T., McDonald, R. T., and Smith, R. F.: Biologic Fate of Human Arterial Grafts, *A.M.A. Arch. Surg.* 75:506, 1957.
3. Jones, T. I., and Dale, W. A.: Study of Peripheral Autogenous Vein Grafts, *Arch. Surg.* 76:294, 1958.
4. Creech, O. Jr., Deterling, R. A. Jr., Edwards, S., Julian, O. C., Linton, R. R., Shumacker, H. Jr.: Vascular Prosthesis: Report of the Committee for the Study of Vascular Prostheses of the Society for Vascular Surgery, *Surgery* 41: 62, 1957.
5. Murray, G.: Surgical Repair of Arteries, *Am. J. Surg.* 83:480, 1952.
6. Lord, J. W. Jr., and Stone, P. W.: The Use of Autologous Venous Grafts in the Peripheral Arterial System, *A.M.A. Arch. Surg.* 74:71, 1957.
7. Edwards, W. S.: Progress in Synthetic Graft Development—An Improved Crimped Graft of Teflon, *Surgery* 45:298, 1959.
8. Edwards, W. S., and Tapp, J. S.: Chemically Treated Nylon Tubes as Arterial Grafts, *Surgery* 38:61, 1955.
9. Edwards, W. S., and Lyons, C.: Three Years Experience with Peripheral Arterial Grafts of Crimped Nylon and Teflon, *Surg. Gynec. & Obst.* 107:62, 1958.
10. Harrison, J. H.: Synthetic Materials as Vascular Prostheses, *Am. J. Surg.* 95:3, 1958.

## CASE REPORT

### Conversion of Ureterosigmoidostomy To Uretero-ileostomy\*

Phillip P. Porch, Jr., M.D., and  
A. Page Harris, M.D.

Although a cutaneous uretero-ileostomy has one major disadvantage, an external collecting apparatus, it is generally considered superior to an ureterosigmoidostomy because of a reduced incidence of pyelonephritis, hydronephrosis and hyperchloremic acidosis. Pre-existing renal disease has been implicated as a causative factor in complications from ureterosigmoidostomy in addition to the obvious factors of reflux of fecal material and reabsorption of urea and electrolytes.<sup>1,2</sup>

There has been little opportunity to study the behavior of the same pair of kidneys diverted into the colon and into an ileal loop. Pyrah<sup>3</sup> reported 2 patients both of whom improved after ileal loop diversion. Persky and associates<sup>4</sup> reported one in whom there was improvement in the degree of hydronephrosis and in electrolyte balance. We wish to report another patient whom we feel has benefited considerably from a revision of his urinary diversion.

#### Case Report

The patient (J.N.C.) was first seen at the Vanderbilt University Hospital at age 18 days with exstrophy of the bladder, complete epispadias and bilateral inguinal hernia. The hernias were repaired at the age of 13 months, and at 5 years of age the ureters were transplanted into the sigmoid colon in two stages, utilizing a submucosal tunnel.

Following the second transplant he developed tenderness in the left costovertebral angle and fever, but this gradually subsided on treatment with sulfathiazole. Postoperative intravenous pyelograms showed satisfactory emptying of the kidneys. Later the bladder was excised and the abdominal wall repaired. The child remained well until age 11 when he began having repeated attacks of pyelonephritis on both sides. These continued and at the age of 16 it was necessary to remove a stone from the lower portion of the left ureter. During the next 3 years he had numerous episodes of acute flank pain but no chills or fever.

On August 7, 1958, at the age of 19 years, the patient was readmitted to Vanderbilt University

Hospital via the Emergency Room because of very severe pain in the left costovertebral angle, fever of 105° F., dehydration and vomiting. An emergency intravenous pyelogram showed a very small, poorly functioning right kidney and no function on the left in one hour. A five-hour film showed hydronephrosis with the point of obstruction at the ureterosigmoid junction. (Fig. 1.) Emergency



FIG. 1. Five hour I.V. pyelogram made the day of admission showing poor Hypaque concentration, delayed excretion and hydronephrosis.

blood chemical studies revealed a N.P.N. of 61 mg. per 100 cc., chlorides of 94 meq/L, and normal sodium and potassium values.

A left nephrostomy was done the day of admission. Bougies were passed down the ureter and an obstruction encountered at the ureterosigmoid junction. The strictured area was dilated from 7F to 20F. With the nephrostomy tube in place, the patient did well and the N.P.N. fell to 54 mg. per 100 cc. The nephrostomy was removed on the 6th postoperative day and the urinary drainage from the wound subsided the following day. The N.P.N. again rose to 64 mg., the chlorides to 111 meq/L and the CO<sub>2</sub> combining power fell to 10.5 meq/L. Because of the patient's severe complications secondary to ureterosigmoidostomy it was considered advisable to redirect the urine utilizing a cutaneous uretero-ileostomy.

On September 2, 1958, through a midline abdominal incision, the ureters were ligated at their entrance into the colon and re-anastomosed to an isolated loop of terminal ileum. He did very well postoperatively. The N.P.N. promptly fell to 40 mg. and the chloride and CO<sub>2</sub> returned toward normal. He was discharged on the 8th postopera-

\*From the Division of Urology, Department of Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.

tive day. He has continued to do well and maintain satisfactory blood electrolytes with no further tendency toward acidosis. The daily care of his urinary ileostomy is about as time consuming as shaving. There has been no recurrence of pyelonephritis and a postoperative intravenous pyelogram has demonstrated an improvement in the hydronephrosis. (Fig. 2.)



FIG. 2. Twenty minute I.V. pyelogram five months following conversion to ureteroileostomy.

### Discussion

The left hydronephrosis was due to stricture formation at the site of the ureterocolic anastomosis. This complication has been reported infrequently in uretero-ileal anastomoses, presumably because less infection is present. The validity of this statement, however, must await the test of time.

The N.P.N. level (Fig. 3) which was fixed

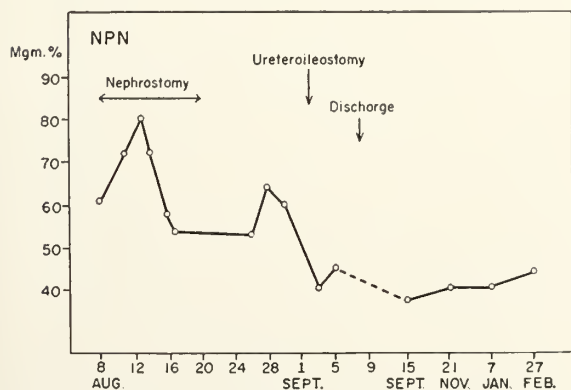


FIG. 3.

above 50 mg. per 100 cc. preoperatively has now become fixed at around 40 mg. The serum chloride (Fig. 4), although below

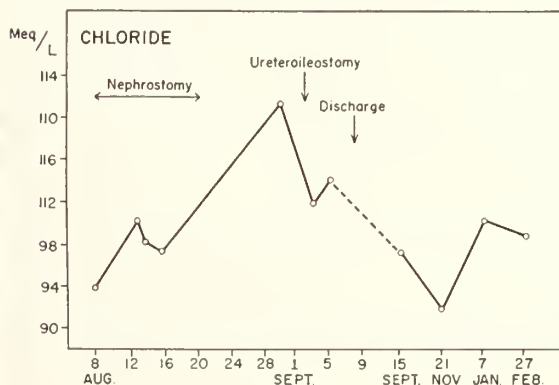


FIG. 4.

normal when the patient was first seen, presumably due to vomiting, rose to abnormally high levels when the patient was properly hydrated and on a regular hospital diet. Postoperative serum chloride levels have consistently been in the normal range. Hyperchloremic acidosis following ureteroileostomy is not unknown but rare. Staley<sup>4</sup> has reported such a case.

Acidosis as reflected by low plasma  $\text{CO}_2$  combining power (Fig. 5) was consistently

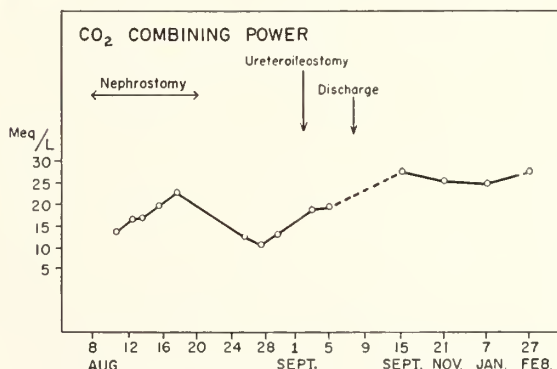


FIG. 5.

present preoperatively but has remained entirely in the normal range in the postoperative period.

It is interesting that the N.P.N. fell, the chloride changed little and the  $\text{CO}_2$  rose during the period of nephrostomy. When the nephrostomy tube was removed the patient developed hyperchloremic acidosis.

The serum potassium (Fig. 6) has been in the normal range throughout the entire period of observation, but the average post-ureteroileostomy value is about one milli-



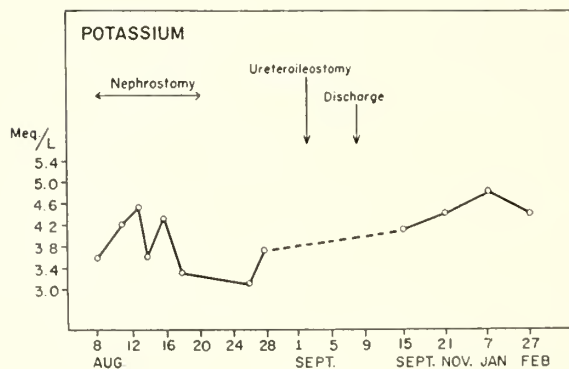


FIG. 6.

equivalent higher than the preoperative average.

### Summary

A case of exstrophy of the bladder treated by ureterosigmoidostomy 15 years ago is presented. The patient exhibited hydronephrosis, poor visualization by Hypaque bilaterally, azotemia, hyperchloremic acid-

osis and recurrent pyelonephritis. The urinary diversion was changed to a cutaneous uretero-ileostomy with resultant reversal of these changes, giving further evidence that bowel serving as a conduit is far superior to bowel serving as a reservoir.

### References

1. Creevy, C. D.: Some Observations Upon Absorption After Ureterosigmoidostomy, *J. Urol.* 70:196, 1953.
2. Lapides, J.: Mechanism of Electrolyte Imbalance Following Ureterosigmoidostomy, *Surg. Gynec. & Obst.* 93:691, 1951.
3. Pyrah, L. N.: Use of Segments of Small and Large Intestine in Urologic Surgery, With Special Reference to Ureterocolic Anastomosis, *J. Urol.* 76:683, 1957.
4. Persky, L., Levey, S., and Abbott, W. E.: Metabolic Alterations Following Diversion of Urine from Colon to Ileal Loop, *J. Urol.* 79:463, 1958.
5. Staley, C. T., and Scanlon, E. F.: Urinary Diversion. Metabolic Alterations Associated with Use of Isolated Ileal Segments, *Surgery* 44:646, 1958.

## CLINICOPATHOLOGIC CONFERENCE

### Vanderbilt University Hospital\*

#### Pulmonary Embolism

This 34 year old white "snuff company" engineer was first admitted to Vanderbilt University Hospital on September 16, 1955 for bronchoscopy.

About 6 weeks prior to admission he developed a mild, lingering febrile illness with no symptoms beyond malaise. He continued to work most of the time and finally became asymptomatic for 2 to 3 days about 3 weeks before admission. However, fever and mild dorsal thoracic pain aggravated by motion shortly supervened. The pain became increasingly severe and pleuritic in character over both sides of his chest. Increasing dyspnea, nonproductive cough, and fever led to his hospitalization, where a chest film revealed a bilateral basal pneumonitis with effusion. He was placed on penicillin and streptomycin in large, adequate dosage.

He continued to have fever to 103.5° daily, was so dyspneic and cyanotic, that he was placed in an oxygen tent for 5 to 6 days. Chloramphenicol, 1 Gm., then 2 Gm., was added without effect. About 1 week before admission his fever decreased to 99 to 100° daily. Beyond an occasional paroxysm of nonproductive cough he became asymptomatic. Follow-up X-ray study however, revealed a 3 cm. cavity with a fluid level in the right lower lobe, and he was sent to Vanderbilt University Hospital for further evaluation.

There was no history suggesting aspiration. No known exposure to tuberculosis or family history of the same. He denied any swelling or tenderness in his lower extremities. His previous health had been excellent. He did not smoke or drink and had never experienced any pulmonary symptoms in the past. The review was completely negative beyond the present illness.

**Examination.** B.P. 120/80, T. 98.6°, R. 20, P. 96. He was a healthy appearing man, not dyspneic or cyanotic. The skin was normal. There was no lymphadenopathy. Head, eyes, ears, nose and throat were not remarkable. The chest was symmetrical with good expansion. There were bilateral crepitant rales at both bases with some flatness to percussion and decreased tactile fremitus over the right base. Tubular, cavernous breath sounds were audible over a well localized area opposite D. 7-8 at the right base with a very amphoric character to the expiratory phase of respiration. There were no rubs. The heart was not enlarged; there were no murmurs; there was normal sinus rhythm. The abdomen was normal; no solid organs were palpable. Genitals and rectal examination were negative. Neurological ex-

amination was negative. There was no edema, tenderness, or swelling in legs; good pulses were felt. No clubbing was noted.

**Laboratory Data.** Urinalysis showed a specific gravity of 1.016, PH. 5.5, Protein and sugar negative, microscopic examination only an occasional WBC. The white count was 9,900 with a differential of Juv. 1, Segs. 81, Eos. 1, Lymph. 14, and Mono. 3; platelets were adequate. Hemoglobin was 14.1 Gms; PCV 45.0%; Icteric index 7.5; Sed. Rate 36, corrected; serologic tests for syphilis were negative.

Bronchial washings showed a light growth of *Strep. viridans*. No pathogenic fungi isolated. No other reports on cultures or smears were recorded.

Serial chest X-ray films, brought by his physician to the hospital, showed a pneumonitis at the bases initially with high diaphragms. Subsequently there was the development on the right of some pleural reaction with a rounded hilar density which had suggested a lung abscess when a definite fluid level was noted. Our film on Sept. 16, 1955 was read as follows: "Calcified primary complex, left. No active parenchymal disease involving the left lung field. A homogenous density is present within the base of the right lung field obscuring details of the diaphragm.

Two separate opacities extend to the level of the 8th rib posteriorly on the right. Beneath the 1st and 2nd anterior I.S. is an area of linear density, somewhat triangular in shape, involving the pleura. Impression—Compatible with multiple pulmonary infarcts."

No EKG was taken.

**Course.** On the 2nd hospital day bronchoscopy was done under anesthesia, 1/4% tetracaine with epinephrine. The carina and left bronchial tree appeared normal. The right upper and middle lobe bronchi appeared normal. The cardiac and posterolateral segments of the right lower lobe bronchus were fiery red with a small ulceration near the former. The right lower lobe seemed deviated laterally and compressed from below. No pus or mucus was seen but there was a foul odor from the right middle and right lower lobe bronchi. Bronchial washings were obtained, a biopsy of the cardiac segment (normal mucosa on pathology report), and 40,000 units of trypsin, 200,000 units of penicillin, and 12 Gm. streptomycin were instilled in the right lower lobe bronchus. The impression on bronchoscopy was suppurative disease, right lower lobe. The procedure seemingly went well although the patient coughed vigorously after the bronchoscopy.

About one hour after bronchoscopy the patient was noted to be cyanotic, hyperpneic, cold, sweaty, and in respiratory distress. Although awake and alert, his blood pressure and pulse were unobtainable. Breath sounds were good bilaterally. No rales were heard, nor stridor or asthmatic wheezes. There were neither demonstrable tympany nor hyper-resonance.

Despite oxygen, I.V. epinephrin, and later artificial respiration, he expired. An EKG. obtained revealed only a "straight isoelectric baseline."

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### Discussion

DR. LLOYD H. RAMSEY: I should like to begin the discussion by putting myself in the place of the physicians who first saw this patient when he was admitted into the Vanderbilt University Hospital. I would have been confronted by a healthy-appearing young man who had experienced excellent health until about six weeks prior at which time he developed a mild lingering illness with fever and some malaise. Some three weeks later, after having become asymptomatic for only 2 or 3 days, he again developed fever and chest pain, the latter becoming increasingly severe and pleuritic in character over both sides of his chest. He developed a cough and increasing dyspnea and a chest X-ray at that time revealed a bilateral, basal pneumonitis with effusion. In spite of penicillin, streptomycin and chloramphenicol in adequate dosages he continued to have fever, became quite dyspneic and cyanotic. His symptoms gradually decreased over a 2-3 week period. However, X-rays taken at this time revealed a 3 cm. cavity with a fluid level in the right lower lobe of the lung. In spite of otherwise normal physical examination, I would have found signs of cavitation in the right lower lobe upon physical examination of the lungs. At this point in the story, it seems almost impossible to avoid the diagnosis of a lung abscess.

If, however, we now return to our present perspective of the situation, it seems to me that there are two major questions which one must attempt to answer. First, if this patient had a lung abscess, what was its underlying cause in an apparently healthy young male and, secondly, what was the immediate cause of death. I expect it was this first question which led his physicians to carry out the bronchoscopic examination.

I have serious doubts that this was a simple lung abscess with mixed infection. The patient was not an alcoholic or subject to seizures and had no antecedent surgical procedure or injury that might lead one to believe aspiration was the basis for the abscess. I cannot be so positive that it was not a specific infection. It is possible that a reactivated tuberculosis caused the fever and malaise and later the apparent pneu-

monia and effusion and led to cavitation. I believe it would be surprising to have the subsequent course of events occur if this initial picture was caused by tuberculosis.

We are daily becoming more aware of the fact that pulmonary histoplasmosis can very closely mimic tuberculosis. Other fungus infections, particularly actinomycosis, should also be considered, but I believe not seriously in this patient. Because of his sudden demise, the bacteriological studies which would enlighten us regarding these possibilities are not available. I believe they would not have revealed a specific infection.

One should also mention bronchial obstruction as a cause for abscess formation. I believe this to be highly unlikely in this patient because he had bilateral involvement during his illness. It is possible that metastatic carcinoma could have involved smaller bronchi bilaterally and in such a case neither of my two reasons for disproving of this cause would be valid.

Finally, in considering causes for the development of a lung abscess, one must consider the possibility that the abscess was secondary to some other disease process whether in the lungs or extrapulmonary.

I do not believe this was an example of an abscess resulting from underlying chronic cystic disease of lungs or bronchiectasis nor from a metastatic bacterial implant during bacteremia arising from some source other than the lung. The protocol states, however, that the X-ray findings in the chest were compatible with pulmonary infarction and the development of a lung abscess following pulmonary infarction is not an uncommon occurrence. Further, it is quite possible to explain the events which led to this man's hospitalization on the basis of multiple pulmonary emboli. But perhaps before we get along any further with this concept we should have our own look at these X-rays. Little can be added to the protocol description of homogeneous density in the base of the right lung and obscuring the diaphragm.

This leads us to the second question "What was the immediate cause of death?" The patient had had installation of local anesthesia and several substances shortly before his demise. This makes one immedi-



ately question the possibility of some reaction to a drug which might have caused an anaphylactoid reaction. In this regard, the note in the chart by the intern, Dr. McMurray, is of considerable use. It says, and I quote, "I was called about 12:25 and found him awake, hyperpneic, cyanotic, cold and sweaty, no pulse or blood pressure obtainable, breath sounds good on both sides with no bubbly rales of asthmatic wheezes and/or laryngeal stridor and no tympany to percussion." These physical findings are not compatible with an anaphylactoid reaction or with pneumothorax. Therefore, my answer to the second question is that his immediate death was caused by a large pulmonary embolus.

I would therefore put the story together in this manner: His original illness was due to a combination of thrombophlebitis and a multiple small pulmonary emboli. At a later date he had a larger pulmonary embolus resulting in a pulmonary infarction, and in turn, infection and lung abscess. Following his bronchoscopy, during the episodes of vigorous coughing, he probably raised his systemic venous pressure and dislodged a large pulmonary embolus which caused his death. I believe the most likely source of the pulmonary embolus was thrombophlebitis of the deep femoral and perhaps the iliac veins.

There are, of course, other possible sources for the pulmonary emboli. Aside from the relatively young age and lack of other evidence for accelerated atherosclerosis, this whole picture could have been caused by primary disease of the heart. His fever and malaise six weeks before his death might well have been due to a silent septal myocardial infarction with the formation of a mural thrombus in the right ventricle and subsequent pulmonary emboli from this thrombus to the lungs and a final large embolus causing his sudden death. However, if this was the background of his illness he might well have ruptured an intraventricular septum or had a sudden cardiac arrhythmia as the cause of his death.

If we decide that death did result from a pulmonary embolus, what is the mechanism by which an embolus caused his death? The two primary effects of pulmo-

nary embolization on the circulation are, (1) mechanical interference with blood flow and (2) myocardial ischemia. In the former, the circulation is blocked to the point that cardiac output is diminished to an extent not compatible with life. In the latter, the decrease in cardiac output and reduction in systemic blood pressure may result in a marked decrease in filling pressure and flow for the coronary circulation. Additionally, coronary circulation outflow may be impaired by the increase in right ventricular heart pressure and a diminution in the flow from the Thebesian vessels into the right ventricle. And finally, while there is evidence for and against such a reflex, the so-called pulmocardiac reflex which is said by some to result in reflex vasoconstriction of the coronary vessels could possibly play a part in the outcome.

There is one other point which seems to me important to consider in regard to this patient. If the man did have a pulmonary embolus, why was he cyanotic? The four general cardiopulmonary disorders which cause cyanosis are, (1) hypoventilation, (2) alveolar-capillary block (3) venous-arterial shunt and (4) unequal ventilation in relationship to blood flow. From a description we have of the terminal event, this patient was hyperventilating rather hypoventilating. There is no reason to expect that the alveolar capillary membrane presented a block to the diffusion of oxygen and one would expect that any area in the lung diffused by blood would have been well ventilated. It is possible that marked elevation of right ventricular and right auricular pressure could have opened an otherwise non-patent foramen ovale and resulted in a right-to-left shunt with the attendant central cyanosis. It seems to me more probable, however, that this man's cyanosis was peripheral in nature, that the arterial blood which could pass through the lungs was well arterialized but that the decrease in blood flow to the tissues was of sufficient amount that the venous blood returning from the capillaries was much lower in oxygen content than one would normally see. The result was an appearance of cyanosis in the presence of normal arterial oxygen saturation of the type seen frequently in failure of the circulation.

In *summary*, then, I think we will find that this man had a thrombophlebitis with resulting multiple pulmonary emboli finally leading to pulmonary infarction, infection and lung abscess and that the final episode was a large pulmonary embolus.

*Final Diagnoses:*

- 1) Massive pulmonary embolus
- 2) Multiple recent and remote pulmonary emboli
- 3) Pulmonary infarctions, uninfected.

DR. JOHN SHAPIRO: It seems to me that Dr. Ramsey has reconstructed the course of events in this patient just about as ably as I can after reviewing the case. The heart was entirely normal, save for slight right side dilatation. The immediate cause of death was a large pulmonary embolus which occluded the left pulmonary artery. Multiple recent and organized pulmonary emboli were found within other arteries to the lung, indicating that repeated emboli had occurred over a period of time. Actual infarction of the lung had taken place in several areas, resulting in the pneumonitic-like consolidation seen on X-ray examination. We ordinarily feel that, without passive congestion or other predisposing cause that pulmonary infarction is unlikely to occur even with several emboli. However, in this case I believe that there had been embolization to the extent

that the ground was prepared for hemorrhagic infarction by these repeated injuries, rendering the vascular supply insufficient to sustain viability of the pulmonary tissue.

I would like to point out that pulmonary embolism may occur even with minor antecedent illness such as this man apparently had. We remember well the case of fatal pulmonary embolism as a complication of a rather mild case of mumps in an adult which we saw some time ago. Too, pulmonary embolism, though classically related to surgical procedures, is seen just about as frequently in association with so-called medical diseases.

We cannot give the source of the repeated emboli in this case, though almost certainly the primary thrombosis was in the leg veins. Permission for examination of the leg veins was not given in this case.

We found no unequivocal evidence of lung abscess—our findings were such as could be explained on the basis of a mild pneumonia with almost complete resolution.

In conclusion we believe this man had a mild, and perhaps interstitial, pneumonia which was resolving satisfactorily but that his illness was complicated and finally terminated fatally as a result of multiple pulmonary emboli, probably originating in the deeper leg veins.

# President's Page

## THE FACE OF MEDICINE



HARMON L. MONROE

In 1830, a group of 47 physicians gathered in Nashville to form an association, motivated by the belief that the practice of medicine should be regulated and quackery should be suppressed.

Judged by whatever standards existed in that day, these were qualified practitioners of the art. They had received one or two courses of lectures at some medical school . . . they had studied in the office of some physician . . . and they had learned from whatever books were available. That they exerted themselves to this extent was proof of their dedication to their profession. For at that time, no formal education was required for a man to offer his services as a practicing physician. No one needed qualification to obtain a license to practice; there was no licensure. As Dr. William Alexander, of Russellville, put it, "Property, but not lives, received the protection of the law"; a lawyer was required to know some law to secure a license to practice.

This was the face that medicine presented one-hundred-twenty-nine years ago . . . a countenance little changed during the many centuries which had elapsed since the inception of the healing art.

Today, the face of medicine is greatly changed. It is a face marked by those characteristics which reveal the quality of the spirit. It is a noble face, proud yet tinged with humility . . . a face of dignity, of compassion, of wisdom and of knowledge. It is seamed by the lines of maturity.

Were it not for the strength of its spirit, the face of medicine would be a grotesque mask . . . twisted, distorted, misshapen from the countless blows which have been hurled at it by its enemies. Against these it can prevail, because its strength is the strength of its children, and its children are many thousand-fold.

But the face of medicine is not unmarked. It bears its scars. And as one views it from the proximity of close and long association, one sees from time to time an expression of sorrow. It might be likened to the expression on the face of the father who suffers for the sins of the child.

Yes, medicine's children are many thousand-fold. And yet, when even one transgresses, a shadow of pain flits across the face and leaves etched behind another tiny scar. These testify to the conscience of medicine and to the wounds of its spirit. The parent suffers for the sins of the child.

If we can accept this analogy . . . if we believe that our strength as members of the Tennessee State Medical Association is great because it is the strength of thousands . . . then, perhaps, we should subscribe to the proposition that any weakness on the part of even a single member robs us all of a part of our strength.

As members of organized medicine in Tennessee, we are the face of medicine. We are regarded as individuals, but we are judged as a profession.

We as members of the Tennessee State Medical Association must, at all times, seek to carry out the principle to which those men dedicated themselves 129 years ago. It is not enough that as individuals we conduct our practice in keeping with the highest traditions of our profession. We must be our brother's keeper. When and where we learn of practitioners whose actions tend to defame the profession . . . to rob us of our strength . . . we cannot turn unseeingly away. We must commit ourselves to a continuing re-dedication to the high ethical standards which have preserved our profession in the past and protect it from the grave dangers which confront it now and will continue to do so in the future. To do any less would be to renounce our responsibilities to our profession.

*H. L. Monroe, M.D.*



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MAY, 1959

## EDITORIAL

### MILK-BORNE PENICILLIN URTICARIA

A recently encountered case of recurrent urticaria proved very puzzling. The patient had received an injection of penicillin and three weeks later developed a typical urticaria. This responded to corticosteroids and to penicillinase. This response was noted on several occasions, but each time after a week or two the urticaria returned. Ultimately it was decided that the presence of penicillin in the dairy products ingested by the patient was serving as the agent which was re-activating the state of penicillin sensitivity.

Over one-thousand individuals have died following the injection of penicillin.<sup>1</sup> It has been suggested that milk contaminated with penicillin could establish a large pool of our population sensitized to penicillin,

which would then be susceptible to severe constitutional reactions to the presumable first injection of penicillin. By the same token, if an individual had become sensitized to penicillin following an injection of the material, ingestion of milk-borne penicillin would re-activate any allergic state that had been created.

Milk becomes contaminated with penicillin when it is used to treat an existing mastitis. Usually 1,000,000 units of soluble penicillin is injected into the infected udder. Almost 50 per cent of this injected penicillin can be recovered in the milk. Actually the penicillin may inhibit the growth of the bacteria necessary for the production of cheese so the milk becomes of no value for this purpose. Spot surveys reveal that 11 per cent of all milk samples are contaminated with measurable amounts of penicillin. Actually only minute amounts of penicillin have been shown to be capable of precipitating reactions. In addition, it is now well known that the penicillin need not be injected to be followed by allergic or anaphylactic reactions, but may create these responses when taken orally, or merely if rubbed into the skin or instilled into the nasopharynx or conjunctival sacs.

Recently Zimmerman<sup>2</sup> reported four cases in which he had good evidence that milk-containing penicillin was the reason for recurrent urticaria. It is his suggestion that in a patient suspected of having penicillin sensitization, there should be a prohibition of the use of dairy products, milk, ice-cream, and cheeses containing molds of the penicillin species. In addition, the repeated use of penicillinase is recommended. The more important factor, the prevention of a general sensitization of the population to penicillin and more calamitous reactions is vital.

A. W.

<sup>2</sup>Zimmerman, M. C.: Chronic Penicillin Urticaria from Dairy Products, A.M.A. Arch. Dermat. 79:1, 1959.

★

### RESOLUTION NO. 16 HOUSE OF DELEGATES, T.S.M.A.

The *third party* in medical care is well established and will become even more entrenched to the point where there will remain a relatively few of our citizens who

Feinberg, S. M., and Feinberg, A. R.: Allergy to Penicillin, J.A.M.A. 160:778, 1956.

will completely bear the expense of their medical care. There is no turning back of the hands of the clock and the continued onward movement of third party responsibility in providing medical care is inevitable.

This being true, the points of exceeding importance to the medical profession are several. First, is the matter of voluntary versus federal prepaid medical plans. This is not the time to discuss the well known arguments pro and con,—the flexibility permitted in free enterprise to meet local and other conditions, as against the rigidity of federal programs dominated by arm-chair administrators in Washington who know nothing of local affairs, the ever-present danger of the whims of Congress to add confusion, and the attendant waste of money when the federal government gets into any business venture. The second matter of importance is the need of medical persons to have a hand in the administration of third party contracts. This relates especially to those “voluntary” prepaid plans which are not truly voluntary but a part of an arrangement between employer and employee to collect funds to provide medical care, the provision of care being in the hands of employees’ organizations. The need for the voice of the medical profession in setting the policies of such “voluntary” programs is so obvious as to need no discussion.

With this as a background we wish to call attention to an important action taken by the House of the Tennessee State Medical Association. Resolution No. 16 begins with,

“WHEREAS: The future survival of voluntary prepaid medical plans depends upon more effective mechanism for professional control and responsibility and

WHEREAS: Organized medicine desires to maintain the responsibility as related to the practice of medicine and . . .

WHEREAS: The proper and adequate responsibility in the practice of medicine is most urgent at this time and

WHEREAS: Unless the profession provides this responsible leadership it will fall in other less qualified agencies, and

WHEREAS: Success of medical care plans depends upon the mutual cooperation of physicians and the consumer or consumer agencies. . . .”

This is followed by a consideration of the lack of an effective arm of the Association,

either through committees or officers, which alone can investigate or review possible controversial situations in this area and recommend action. It was therefore RESOLVED,

“That the House of Delegates of the Tennessee State Medical Association establish a special committee of nine members, three from each grand division of the State, to be known as “The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans” whose duties shall be as follows:

“1. Consultation in matters pertaining to costs as they relate to the distribution of services provided by voluntary insurance plans.

“2. To maintain a continuing appraisal of the quality of medical care as it related to such costs.

“3. To maintain continuing liaison with appropriate legislative bodies which may establish proper laws for effective enforcement of these goals which lie in the public interest.

“4. To maintain continuing liaison with purveyors of prepaid medical insurance, inviting a free exchange of information and ideas.

“5. To report findings to the Council where disciplinary action seems indicated.

“6. To study and devise better means of providing preventative medical measures to the public.

“7. To appoint subcommittees to implement special phases of the broad purposes of this Committee.”

The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans has, in other words, the serious duty of seeing that third party contracts are made to work in an equitable fashion to the benefit of all concerned,—patient, doctor, and insurer. It is the firm belief and thinking of organized medicine that voluntary health insurance is preferable for many reasons to federal health insurance. (The reasons have been considered from time to time on these pages.) The purveyors of voluntary health insurance are just as anxious that they remain the third party rather than Uncle Sam. Once health insurance becomes federalized, it would be but a short step to extend Social Security into the life insurance field for the protection of the wage earner’s family, and the end to the insurance business.

Therefore from the viewpoint of the doctor, the insurance purveyor, and the patient, though the latter probably has given it little thought, the third party must not be the federal government. But if government is



to be kept out of the picture, voluntary health insurance must prove itself in supplying the protection people demand. This implies honesty and ethical practice on the part of both the insurance purveyors and doctors. It would be most unfortunate if federalization of health insurance evolved by default, merely because the public does not understand to what it is entitled under its insurance policies, or because of sharp practices of an occasional insurance purveyor, or because of the dishonesty and unethical conduct of a few doctors. Yet this is what might well happen to the detriment of all as the result of the greed of a few.

State laws set limits to the malfeasance of insurance companies. Purveyors of health insurance, employers, farm bureaus and labor unions, as well as doctors, should carry on a nation-wide campaign of education as to the benefits of the policies held by patients.

Relative to the doctors a new approach may be needed. In general, the doctor's honesty has been a personal matter of conscience; dishonesty, if present, being found out by his patients who have had the free choice to look elsewhere for medical care. In the past this doctor's confreres have let the matter rest there, rightly or wrongly, not assuming the role, but rarely, of being their brother's keeper. (Realistically speaking, it may have been difficult to do anything about a physician's dishonesty in the past because of hearsay evidence only, except for matters falling to tissue committees.) Now evidence of questionable practices may be a matter of record because of third party data. More important, however, is the fact that selfishness and dishonesty no longer involve only individual doctor and patient relationships, but actually undermine the foundations of voluntary health insurance. If the shortcomings of the few make voluntary health insurance unworkable, it will not be long before the demands of the public will plunge this country into federalized insurance, for the public *will have protection*. We doctors and the public then will have panels of doctors, restrictions in practice, paper work, loss of free choice of physicians and be at the mercy of the vacillations of each Congress,—all with a vengeance.

Preventive medicine, prophylaxis and debridement are basic principles in medical practice. Similar measures may be needed in the care and protection of the body politic. The State Association has not had in its officers or its committees the power to investigate, to arbitrate, nor to police, if need be, any circumstances which may jeopardize the success of voluntary health insurance, whatever the source. The Consultation Committee on Administration of Voluntary Prepaid Medical Care Plans has been given these powers for the good and protection of all.

R. H. K.



### IMMUNIZATION AGAINST POLIO

Who would have guessed, with the introduction of the Salk vaccine and the reduction of paralytic polio that there would be the degree of apathy which is evident in the population at large.

A current information bulletin from the American Medical Association states that more than one-third of those under age 20 and three-fourths of adults under 40 have resisted all attempts at immunization.

This is the season to get underway with immunizations against polio. The National Health Council, the American Medical Association, the U. S. Public Health Service, the American Academy of Pediatrics, the National Foundation, and other groups are joining in urging community action in programs of immunization against polio.

All doctors should join county health departments and other groups in urging and organizing such programs.

## DEATHS

**Dr. Carl E. Ausmus, Sr.**, 49, Jellico, died on March 23rd at Clearwater, Florida.

**Dr. Herman Paul Rieger**, Nashville, died April 16th at a Nashville Infirmary.

**Dr. Edwin H. Carnes**, Memphis, died April 13th in a Hartford, Connecticut Hospital. He was 61.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Blount County Medical Society

In a recent meeting, the Society inaugurated a program of service to the commu-



nity toward safe, effective and economical immunization. During the weeks of March 22-28, the Society released a number of articles about modern immunization.

### **Consolidated Medical Assembly**

The Consolidated Medical Assembly of West Tennessee met on April 7th in the New Southern Hotel. Hand injuries and reconstructive problems were the topics for a panel discussion with Dr. John Riddler, Dr. C. L. Holmes, Dr. Jack Booth and Dr. Robert Barnett composing the panel.

### **Robertson County Medical Society**

The Society held its monthly meeting in the Jesse Jones Hospital on the evening of April 20th. Dr. A. Brant Lipscomb, Nashville, gave a talk on the subject "Injuries and Treatment of Fractures of the Elbow."

### **Greene County Medical Society**

The Society met on April 7th in the Elks Club in Greeneville. The guest speaker was Dr. Edward T. Brading of Johnson City, whose subject was "Pheochromocytoma, Its Relationship to Hypertension." The subject was discussed by several members present.

### **Roane County Medical Society**

The monthly meeting of the Society was held on April 28th in the Oak Ridge Hospital. A dinner meeting preceded the scientific session. The program consisted of "Tricks and Traps in Diagnosis and Therapy" by Dr. Flavious Austin, pathologist at St. Pauls Hospital, Dallas, Texas.

### **Coffee County Medical Society**

The Coffee County Medical Society met on March 10th. At the meeting, the Society voted to support the Red Cross Campaign program for members and funds. Urgency of community support for the Red Cross campaign was stressed.

The medical society urged people of the community to give generously to the campaign.

### **Knoxville Academy of Medicine**

The Society conducted its monthly meeting on the evening of April 21st in the Academy of Medicine building. The scientific program consisted of a panel discussion produced by members of the Knoxville Bar

Association. The subject was "The Medical Witness."

### **Chattanooga and Hamilton County Medical Society**

The Society met for its regular meeting in the Interstate Building on April 7th. The scientific program consisted of a paper entitled "A Comprehensive View of In-Plant Medicine" by Dr. O. D. Groshart; "Results of Common Duct Exploration During Biliary Surgery" by Dr. Joseph W. Graves; and a case report by Dr. Clarence Shaw.

### **Memphis and Shelby County Medical Society**

The Society met in regular session on Tuesday, March 17th in the Ballroom of Hotel Peabody. The guest speaker was introduced by Dr. Sam Raines.

The guest speaker, Dr. Louis M. Orr of Orlando, Florida, president-elect of the American Medical Association, presented a paper on the subject "No Euthenasia for the Elderly."

### **Sullivan-Johnson County Medical Society**

The Sullivan-Johnson County Medical Society met on April 9th at the Ridgefields Country Club at Kingsport. Dr. Jesse Adams of Nashville addressed the group on, "Experiences with an Efficient Heart-Lung Apparatus."

## **NATIONAL NEWS**

### **The Month in Washington** (From the AMA Washington Office)

The overriding health issue here—and one of the more debated subjects in any field—has been the dispute over radiation health hazards.

Out of the controversy, it is clear, will come a sharply stepped-up federal program of evaluating radiation levels, testing foods, and determining the effects of radiation on the human body.

Already, Arthur S. Flemming, Secretary of Health, Education and Welfare, has called for such an expanded program. And key congressmen are even more insistent that the government do more work in this area.

The growing concern over radiation levels and their effect on health has prompted harsh criticism of the Atomic Energy Commission by some lawmakers who contend the agency is minimizing radiation dangers because it handles the testing of nuclear bombs.

Agency officials claim they have held back no information from the public, but they agree on the need for a government-wide survey of the entire problem to determine how it might best be handled. At present, the AEC does the bulk of the research work on the biological effects of radiation.

The AEC and the Public Health Service have reported that the amounts of radioactive strontium-90, the isotope that is released into the atmosphere by hydrogen bomb shots, have been far below estimated danger levels in food that has been tested.

However, Mr. Flemming has conceded that much more research has to be done. For example, he pointed out, little is known now about how much strontium-90 is retained within the body, though the amount consumed can be gauged.

A special advisory committee of 12 scientists and physicians that was appointed by the Health Service recommended after a year's study an exhaustive program of radiation research and protection as well as shifting prime responsibility from the AEC to the Health Service. The advisory group, headed by Dr. Russell H. Morgan of Johns Hopkins University, proposed also some sort of federal supervision over X-ray machines used by physicians.

Chairman Lister Hill (D., Ala.) of the Senate Labor and Public Welfare Committee has introduced legislation to carry out the advisory group's recommendations, and called for hearings on the measure.

Meanwhile, the National Academy of Sciences with the backing of the Administration, has undertaken a broad new investigation of the biological effects of radiation.

★

The House overwhelmingly approved the Keogh-Simpson measure to encourage retirement plans for the self-employed. Senator Harry F. Byrd (D., Va.), chairman of the Senate Finance Committee, promptly announced that he would hold hearings on

the legislation this session. Last year, the Senate Finance Committee was unable to hold hearings on the measure since it passed the House too late in the session.

★

Rep. Aime J. Forand (D., R.I.), admitted that the future of his bill to provide government medical and hospital care as part of social security program is dark.

In a report to Congress, the American Medical Association noted "solid progress" in its program to improve the health care of the aged. Dr. Leonard W. Larson, chairman of AMA's Board of Trustees, said in a letter to the House Ways and Means Committee that the development of new insurance programs and expansion of existing lower cost protection for the elderly are moving forward "even faster than many of us would have dared hope only a few months ago."

### Hospital Policies Currently Cover 40% of Over 65

About 40 percent of all persons 65 and over are now covered by hospitalization insurance, the Social Security Administration estimates.

Of the total of six million aged persons now covered, about three million and five hundred thousand have Blue Cross-Blue Shield contracts, two million have private insurance policies covering hospitalization, and five hundred thousand are enrolled in independent plans not connected with Blue Cross or commercial insurance companies.

### American Medical Education Foundation

In order to coordinate and strengthen its activities, the American Medical Education Foundation has formed nine regional areas. Regional meetings will be held once each year, and national meetings will be held every second year. Further announcements will be forthcoming relative to the regional meeting for those states in which Tennessee is included.

## MEDICAL NEWS IN TENNESSEE

### 55,000 Tennessee "Oldsters" Have Blue Cross

In Tennessee, more than 55,000 persons age 65 or older have Blue Cross protection.



Total coverage of all persons under the Blue Shield plan in Tennessee reached an all-time high of 732,570 at the close of 1958. It is estimated by Blue Shield officials that 25.86 percent of the population of the state is now covered by Blue Shield.

### Hospital Construction in Tennessee

The Health, Education and Welfare Department reported as of April 1st, that the LaFollette Community Hospital was adding 34 beds at an estimated total cost of \$174,500.

At the same time HEW reported that completed and in operation were 90 projects at a total cost of \$69,012,880, including federal contribution of \$25,560,431. The report stated that 34 projects were under construction at a total cost of \$18,766,682. Approved, but not yet under construction were 13 projects at a total cost of \$12,812,347, which will provide 50 additional beds in the state.

### Civil Defense Problems Discussed

Dr. William M. McAnally, Jr., medical officer for Region III of Civil Defense, recently outlined for Midstate medical and nursing personnel, techniques to be used in the event of atomic attack.

The meeting was sponsored by the State Office of Civil Defense and the Nashville-Davidson County Chapter of the Red Cross.

### Hay Long High Science Class Wins \$500 Bond

Hay Long High School's Science Club is the state-wide winner of the first prize of a \$500 bond presented by the Tennessee State Medical Association at the annual meeting in Memphis.

Hay Long was one of 25 entries in the state with its project "The Fight Against TB." Second place went to Cloudland High in Johnson County. The Hay Long project, in which 257 skin tests for TB were given, 37 reactors were found.

### Guide Issued for Using Simplified Insurance Claim Forms

A guide for physicians on the use of the new simplified claim forms for accident and health insurance policies issued by insurance companies has been published by the Health Insurance Council.

Entitled "Simplified Claim Forms for Ac-

cident and Health Insurance—A Report to the Physician," the manual describes the principles of the Council program to reduce paper work for doctors and at the same time provide insurance companies with the medical information they need to process and pay claims. The claim forms—called "Standardized Attending Physician's Statements"—were developed by the Council's Uniform Forms Committee in cooperation with the American Medical Association.

Additional copies of this manual may be obtained upon request from the Health Insurance Council, 488 Madison Avenue, New York 22, New York.

### University of Tennessee College of Medicine

The University of Tennessee has agreed to join the City of Memphis in building a \$1,600,000 radiology laboratory and allocated more than a quarter of a million dollars for the project. Plans have begun for a three-story building. It will contain X-ray facilities, laboratories and various other diagnostic services and will be tied in with the John Gaston Hospital.

★

The Memphis Heart Association has awarded a \$5,000 grant to the Division of Surgery to support the research of Dr. James W. Pate, formerly assistant chief of thoracic surgery at Kennedy Veterans Hospital. This will make possible increased use and modification of a heart pump, purchased for the university a few years ago on an additional \$5,000 grant from the Heart Association.

★

Dr. G. Dale Buchanan, research associate in biology at Rice Institute at Houston, Texas, has joined the anatomy staff.

★

A postgraduate course in oral surgery has been presented by the University of Tennessee College of Dentistry.

★

A grant totaling \$191,630 to support a new graduate training program for pediatricians has been awarded the Division of Pediatrics by the National Heart Institute of the National Institute of Health, U. S. Public Health Service. Funds will be allocated at the rate of \$38,326 per year. Dr. James N.



Etteldorf, professor of pediatrics, will direct the program.

★

Dr. Donald B. Zilversmit, professor of physiology, will receive \$30,000 a year for life—the highest research award that can be received through the American Heart Association's career investigator program.

### Vanderbilt University School of Medicine

The Vanderbilt University School of Medicine will receive a \$432,000 grant over a 24-year period to provide for cancer research by an added professor, Dr. Sidney P. Colowick. Dr. Colowick does research on enzymes (catalytic agents that accelerate specific transformations of material in plants and animals) and their mode of action on cell growth. This represents one of three new American Cancer Society professorships in research.

★

The effects of radiation was the subject of three talks presented on April 3rd at a meeting of the Vanderbilt Medical Society held in the School of Medicine amphitheater. Speakers and subjects were:

"Radiation in Genetics" by Dr. August H. Doermann, biologist; "Hazards from Radioisotopes" by Dr. George R. Meneely, of the Radioisotope Clinical Center; and "Therapeutic Radiation" by Dr. Granville W. Hudson, radiologist. Discussion leaders were: Drs. Curtis P. McCammon and Robert Chalfant.

### Tennessee Radiological Society

The Tennessee Radiological Society recently elected the following officers: President, 1959, Dr. Granville Hudson of Nashville; President-elect, Dr. George Henshall of Chattanooga; Vice-President, Dr. Edward H. Mabry of Memphis; Secretary-Treasurer, Dr. James J. Range of Johnson City.

Members of the Executive Committee: Dr. Charles Reavis of Chattanooga.

Councilors nominated for the American College of Radiology are Dr. Walter Hankins of Johnson City and alternate, Dr. J. Marsh Frere of Chattanooga.

## PERSONAL NEWS

**Dr. Lewis A. Schmidt, III**, Chattanooga, was recently certified as a Diplomate of the American Board of Surgery.

**Dr. J. T. Layne**, Copperhill, has been elected president of the Copperhill School P.T.A.

**Dr. Harwell Wilson**, Memphis, presented two papers before the annual meeting of the Oklahoma State Medical Association in Tulsa.

Opening of the Brainerd Obstetrical and Gynecological Center in Chattanooga was recently announced by **Dr. Paul Johnson, Jr.** and **Dr. Thomas C. Monroe**.

The Claiborne County Hospital Board of Directors recently named a committee on credentials composed of **Dr. Hollis C. Evans**, **Dr. Charles S. Gelbert** and **Dr. George L. Rea**, all of Tazewell.

**Dr. Vincent L. DiRienzo**, Franklin, attended the meeting of the Southeastern Surgical Conference in Miami.

**Dr. Cyrus C. Erickson**, Memphis, has been elected president of the American Society for Experimental Pathology, at a recent meeting in Atlantic City.

**Dr. W. M. Phillips**, announces the opening of his office for the practice of surgery in Jackson.

**Dr. Charles Meadows Clark**, McMinnville, has been named district governor for the Tennessee District of Rotary International.

**Dr. Andrew H. Crenshaw**, Memphis, is one of four orthopedic surgeons in the U. S. selected as an exchange fellow for a seven-week visit to England.

**Dr. Stanfield Rogers**, Knoxville, has received the third annual award of the American Society for Experimental Pathology for basic research on how tumors and cancers behave and grow.

**Drs. Grace Moulder**, **John Derryberry** and **Henry Feldhaus**, Shelbyville, announce the opening of the Doctors Clinic in Shelbyville.

**Dr. Charles D. Couser**, Cowan, is the new president of the Rotary Club.

**Dr. Sam H. Sanders, Jr.**, Memphis, has been made a member of the American Laryngological Association.

**Dr. William Brady Camp**, Kingsport, has been elected a Fellow of the Industrial Medical Association.

**Dr. C. A. Rosenberg**, Memphis, recently addressed the Memphis Lay Diabetic Association on the subject "Facts and Fiction About Diabetes."

**Dr. R. C. Kimbrough**, Madisonville, was an honor guest at the recent Doctors' Day, sponsored by the Sweetwater Valley Medical Auxiliary.

New chief of staff of Methodist Hospital in Memphis is **Dr. Nicholas Gotten**.

**Dr. Houston Price**, Chattanooga, was the guest speaker before the Chattanooga Law Club, on March 16th.

**Dr. Anthony P. Jerome**, Memphis, gave a paper before the Southeastern Society of Plastic and

Reconstructive Surgeons in Charleston, S. C. His subject was "Repairs of Facial Fractures."

**Dr. Ralph O. Rychener**, Memphis, spoke on the subject "The New Era of Aging" before the Memphis Kiwanis Club.

**Dr. John Platt**, Johnson City, addressed the East Tennessee Licensed Practical Nurses at the monthly meeting.

**Dr. W. F. Ontlan**, Somerville, spoke on the subject "Making our Children Healthy" before the Oakland Parent-Teacher Association.

**Dr. James F. Cleveland**, Corryton, has opened his office for the practice of medicine in Carthage. He will be associated with **Dr. Frank T. Rutherford, Jr.**

The Donelson Clinic has been formed by six physicians. They are: **Drs. C. N. Gessler, L. E. Smith, J. E. Hurt, J. M. Miller, E. E. Anderson and R. B. Gaston.**

**Dr. Raymond Webster**, Memphis, formerly of Chestnut Mound, has moved to Smithville to become associated with **Dr. J. K. Twila** in the practice of medicine and surgery.

**Dr. D. A. Sanders** has opened an office for the practice of medicine and surgery in the Armstrong Clinic at Waverly.

**Dr. E. R. Baker**, White Pine, spoke on the subject "Care of Pre-mortem Patients" before the Tennessee Licensed Practical Nurse Association.

**Dr. K. Z. Morgan**, Oak Ridge, director of the Health Physics Division of Oak Ridge National Laboratory, is on a three-week lecture tour of Japan.

**Dr. James L. Fowle**, Chattanooga, and nine Chattanooga physicians participated recently on a weekend television program. In addition to Dr. Fowle, physicians participating were: **Drs. Edward G. Johnson, George K. Henshall, Jr., Edward E. Reisman, Jr., Harry E. Jones, Jack Adams, Bruce A. Elrod, James W. Davis, Foster Hampton, Jr., and George Sivils.**

**Dr. A. J. von Werssowetz**, Chattanooga, participated on a TV program entitled "Social Hygiene."

**Dr. Joseph W. Graves**, Chattanooga, spoke on the subject "Surgery for Cancer" on a Chattanooga Radio Station.

"The Truth About the X-Ray Scare" was the subject discussed by **Dr. Thomas E. Braly, Jr.** on a Chattanooga TV station, the program being sponsored by the Health Council and Medical Society.

**Dr. Wm. H. L. Dornett**, Memphis, is the senior author of a book "Instrumentation in Anesthesiology."

**Dr. H. James Crecraft** has joined Dr. Charles B. Smith in the practice of adult and child psychiatry, in Nashville.

**Doctors Gould A. Andrews of Oak Ridge, Duval H. Koonce of Jackson, John Charles Larkin, Jr. and Alva B. Weir, Jr.,** of Memphis, were inducted as Fellows at the convocation of the recent meeting of the American College of Physicians, in Chicago. **Dr. John D. DePersio** of Oak Ridge, was elected to Fellowship in the College. **Doctors**

**Richard C. Bozian** of Nashville, **John H. Kier** of Memphis, **Freeman L. Rawson, Jr.,** Knoxville, and **James P. Worden** of Knoxville were elected to Associateship in the College.

**Dr. E. H. Storer**, Memphis, has been elected to membership in the Society of University Surgeons.

## ANNOUNCEMENTS

### Woman's Hospital, Division of St. Luke's Hospital

The Woman's Hospital Division of St. Luke's Hospital in New York City offers a one week course in "The Conduct of Labor and Delivery." This is for general practitioners, and thirty hours Category I Credit is allowed by the American Academy of General Practice.

The course consists of lectures, demonstrations, work in the Prenatal and Postpartum Clinics and assistance in the Delivery Room. Enrollment is limited. If interested, please write to Mr. Carl P. Wright, Jr., Director, Woman's Hospital, 141 West 109th Street, New York City for prospectus and details. The time of the course is October 3 through October 14, 1959. Enrollment will close on September 15, 1959.

### Cancer Detection Booklets

"Cancer Detection in the Physician's Office" is a valuable booklet which may be obtained through the County Units of the American Cancer Society. Another is "Cytology and Cancer of the Cervix."

### Doctors of Medicine Recently Licensed in State

Phillips, James D., Memphis  
Potts, Thomas E., Nashville  
Pascal, Louis G., Jr., Jackson  
Hyatt, Norman L., Covington  
Stratton, Henry T., Memphis  
Turner, James E., Memphis  
Warren, Charles F., Memphis  
Barlow, Olive P., Memphis  
Blake, Cleland C., Strawberry Plains  
Clumenfeld, Harry B., Memphis  
Crook, Jerrall P., E. Point, Ga.  
Fowinkle, Eugene W., Memphis  
Garrett, Julius M., Memphis  
Gratz, John F., Jr., Memphis  
Hanna, Jefferson A., Jr., Memphis  
Minton, Lee Roy, Baxter  
Monger, Joseph E., Memphis  
Newton, Saint E., III, Memphis  
Nicholson, Chas. P., Jr., Athens  
Quarles, James R., Memphis  
Shankman, Sidney, Memphis  
Suhachner, Sheldon, Jr., Brooklyn, N. Y.  
O'Neil, Francis S., Chapel Hill, N. C.  
McClellan, William A., Germantown  
Hamilton, William T., Memphis

## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville, Tennessee.*

### Locations Wanted

A 38 year old widowed physician, Methodist. Graduate of George Washington University. Priority IV. Desires general surgery practice in east Tennessee community of 10,000-200,000. Available immediately. LW-300

A 32 year old married physician, Episcopalian. Graduate of Medical College of Georgia. Priority V-A. Desires location in community of 2,000-10,000 for general practice. Available immediately. LW-301

A 43 year old physician, Presbyterian. Graduate of University of Pennsylvania. Desires general practice with some surgery and OB. Would consider industrial. Prefers east Tennessee. Available immediately. LW-302

A 35 year old married physician, Catholic. Graduate of Indiana University. Priority IV. Desires general surgery practice in community over 15,000. Has four years general surgery residency. Available immediately. LW-304

A 34 year old physician, Baptist. Graduate of University of North Carolina. Priority IV. Desires Ob-Gyn practice in clinic or association with other doctor. Available immediately. LW-305

A 31 year old married physician, Methodist. Graduate of Louisiana State University. Priority IV. Desires clinical general practice. Available immediately. LW-307

A 33 year old married physician, Southern Presbyterian. Graduate Bowman Gray School of Medicine. Priority IV. Desires clinical or associate practice in Ob-Gyn. Available immediately. LW-314

A 33 year old married physician, Lutheran. Graduate Loyola of Chicago (Stritch). Priority IV. Desires clinical or associate practice in Internal Medicine in community of 50,000 or more. Available immediately. LW-315

A 33 year old married physician, Methodist. Graduate of Vanderbilt University. Priority IV. Desires location in middle Tennessee in general practice. Prefers clinic or some industrial work. Available immediately. LW-320

A 23 year old married physician, Protestant. Graduate University of Tennessee. Desires general practice in community of 2,000 to 5,000 in east Tennessee. Available July, 1959. LW-327

## Physicians Wanted

### Location of the Month

Middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area 8,000. Located 72 miles from Nashville and about 32 miles from three hospitals. Agriculture and small industry. Excellent high school and elementary school. Adjacent to one of state's finest recreational areas. PW-123

Large clinic in northwestern Tennessee has opening for Pediatrician with minimum of 2 years residency and 1 year rotating internship. Excellent opportunity in established location. PW-91

Wanted: Internist interested in association with established Medical Clinic in West Tennessee community. PW-99

Middle Tennessee community desires physician. No other physician located there. Excellent size and opportunity in community of rapid growth and young families. PW-100

Community of 400 in southern Tennessee desires physician. New ten room clinic rent free to physician interested in this location. PW-102

Physician in middle Tennessee community of 3,000 offers excellent salary to general practitioner with view toward association. All equipment and office space furnished. Community has hospital. Age 25-35. PW-108

Four-doctor clinic in East Tennessee town of 12,000 will sell share of member retiring because of health. General man or surgeon acceptable. Modern building leased and equipment owned by group. Available immediately. PW-110

Community of 20,000 in central Tennessee desires physician specializing in EENT and Pediatrics. Community has large hospital and need for physicians is great. PW-112

Northeast Tennessee community of 20,000 population has great need for Otolaryngologist. Community has 71 bed hospital which will supply equipment for in-patient use. PW-114

Pediatrician with training to satisfy Board requirements needed in middle Tennessee community with new hospital and office space near hospital. Laboratory and X-ray included on rental basis if desired. PW-116



# Journal of the Tennessee State Medical Association

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Number 6

## Abstracts of the Proceedings of the House of Delegates of the Tennessee State Medical Association Memphis, April 12-14, 1959

The House of Delegates of the Tennessee State Medical Association, meeting at the Peabody Hotel, Memphis, Tennessee on April 12 and 14, 1959, in conjunction with the 124th Annual Meeting of the Association, convened at 1:00 P.M., Dr. Joseph W. Johnson, Jr., Speaker of the House of Delegates, presiding.

The invocation was rendered by Dr. Donald Henning, Pastor of the Calvary Episcopal Church, Memphis.

DR. HENNING: "Deepen and quicken in us, O God, the sense of Thy presence, and refresh us with Thy power. Bless all whom Thou has called to be sharers in Thine own work of healing. Let them learn their art in dependence upon Thee. Let them exercise their skill to Thy honor and glory. Grant, O Merciful Father, that they, and all committed to their care, may be brought through the mystery of suffering into union with Thee.

"Deliver us all, we beseech Thee, from the service of Mammon, that we may do the work which Thou givest us to do, in truth, in beauty, in honor and in righteousness, with singleness of heart as Thy servants, and to the benefit of our fellow men. For the sake of Him who came among us as One that serveth, Thy Son, Jesus Christ, our Lord. Amen."

The Speaker called upon Dr. Ben L. Pentecost, Memphis, Acting Chairman of the Credentials Committee, to determine if a quorum was present. Dr. Pentecost stated that seventy-three members of the House had registered and qualified as members of the House of Delegates. He reported that this constituted a quorum.

The Speaker stated to the House that the minutes of the last regular session had been reproduced in the June, 1958 issue of the JOURNAL and he requested that a motion be

presented to adopt the minutes as published. It was moved and seconded that the House dispense with the reading of the minutes and that the minutes of the last regular session be approved as published in the June, 1958, issue of the JOURNAL. **The motion was adopted.**

The Speaker, Dr. Johnson, announced the personnel of the Reference Committees, which were as follows:

### Committee on Credentials

Roy L. McDonald, Chairman, Oneida  
Ambrose M. Langa, Columbia  
Ben L. Pentecost, Memphis

### Committee on Amendments to the Constitution and By-Laws

Chas. C. Trabue, IV, Chairman, Nashville  
Dana W. Nance, Oak Ridge  
John R. Thompson, Jr., Jackson

### Committee on Resolutions

Carl A. Hartung, Chairman, Chattanooga  
John D. Hughes, Memphis  
Addison B. Scoville, Jr., Nashville

### Committee on Reports of Officers

John Kesterson, Chairman, Knoxville  
Bland W. Cannon, Memphis  
Thurman Shipley, Cookeville

### Committee on Reports of Standing Committees

S. Fred Strain, Chairman, Memphis  
Laurence A. Grossman, Nashville  
E. L. Caudill, Jr., Elizabethton

### Committee on Reports of Special Committees

William A. Garrott, Chairman, Cleveland  
Baker Hubbard, Jackson  
C. B. Roberts, Sparta

### Committee on Outstanding Physician of the Year Award

Chas. C. Trabue, IV, Chairman, Nashville  
J. Paul Baird, Dyersburg  
R. B. Wood, Knoxville

The Speaker announced that the House would receive petitions from county societies seeking charters and the seating of delegates from the newly chartered societies. There were no petitions to be presented.

The Speaker announced that the House would give consideration to amendments to the Constitution and By-Laws laying on the table from the previous year. There were no amendments on the table to be considered by the House.

#### Introduction of Amendments

Speaker Johnson called for the introduction of any proposed amendments to the Constitution. There being none, he called for introduction of amendments to the By-Laws.

Dr. James C. Gardner, Nashville, presented Amendment No. 1 to the By-Laws as follows: "Amend Chapter VIII, Section 1 (a) of the By-Laws by deleting item No. 10—A Committee on Physical Therapy. Amend Chapter VIII, Section 11, by deleting the Section 11 in its entirety."

It was pointed out that the standing committees should remain those active committees of the Association that transact regular business. Since the Committee on Physical Therapy had been inactive, it was recommended that, if necessary, the committee could be appointed as a special committee. The Amendment was referred to the Reference Committee on Amendments.

Dr. Gardner presented Amendment No. 2 as follows: "Amend Chapter VIII, Section 1 (a) of the By-Laws by adding a new section entitled 'Committee on Tennessee Medical Foundation.'

"Amend Chapter VIII, by adding at the end, a new Section to read as follows: 'The Committee on Tennessee Medical Foundation shall consist of nine members to be appointed by the Board of Trustees, the members to serve terms of three years each, with three members to be appointed each year; that the first appointments shall be made for the following terms: three members for three years; three members for two years and three members for one year, with all subsequent appointments to be for terms of three years.'

"The Committee shall formulate the policies and determine the program of the Ten-

nessee Medical Foundation. It shall have the general management and control of the activities of the Foundation. The Committee, through its chairman, shall make an annual report to the House of Delegates.

'At all meetings of the Committee, five members shall constitute a quorum for the transaction of business.

'The Chairman of the Committee shall be appointed by the Board of Trustees. The duties of the Committee shall be to study the problems involved with medical care in rural and isolated areas and to assist in providing medical care to such areas. Other duties shall be the extension of medical knowledge, the advancement of medical science, the elevation of the standard of medical education and the prevention and cure of disease.

'The Committee on Tennessee Medical Foundation may establish such subordinate committees as necessary to conduct the business of the Foundation. The Committee on Tennessee Medical Foundation shall also constitute the members of the Board of Directors of the Tennessee Medical Foundation."

This amendment was presented in order to reorganize and bring into the Tennessee State Medical Association, the functions of the Tennessee Medical Foundation. The Amendment was referred to the Reference Committee on Amendments.

Dr. W. O. Vaughan, Nashville, introduced Amendment No. 3 to the By-Laws. "Amend Chapter VI, Section 5, by substituting for the words, 'Executive Secretary', the words 'Executive Director', wherever such words appear in this section."

The explanation of this Amendment was that the change would delineate between the constitutional secretary and the executive secretary and would give a better description of duties and activities. The Amendment would better describe and define the duties and actions and responsibilities of the Executive Secretary. This Amendment was referred to the Reference Committee on Amendments.

#### Announcements

The Speaker introduced the President-Elect of the Mississippi State Medical Association, Dr. Hill of Corinth.

Dr. J. Malcolm Aste, Vice-Speaker of the



House, announced that the State Committee on Trauma of the College of Surgeons would meet in Room 214 on Tuesday.

#### Introduction of Resolutions

(Complete Resolutions as presented to the House begin on Page 239).

The Speaker stated that the next order of business was the introduction of resolutions. Delegates were directed not to discuss or debate the resolutions at the time of introduction, but read them only in order that the Speaker could get the resolutions before the proper Reference Committee. The Speaker stated that those interested in resolutions introduced, should appear before the Reference Committee on Resolutions and express their views. The Speaker announced that opportunity would be given for debate and discussion when the resolutions were reported out by the Reference Committee on Resolutions on Tuesday, April 14.

#### Resolution No. 1:

Dr. W. O. Vaughan, Nashville, introduced Resolution No. 1 dealing with action adopted previously by the American Medical Association's House of Delegates covering a Report of AMA Commission on Medical Care Plans. The resolution involved policy adopted by TSMA. The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 3:

Dr. James C. Gardner, Nashville, introduced Resolution No. 3 concerning the Tennessee Medical Foundation and bringing the activities and program of the Foundation into closer relationship and direction by the Tennessee Medical Association. The Resolution was referred to the Reference Committee on Resolutions.

At this point, the Speaker asked those members of the House who were serving for the first time, to rise and be recognized. He outlined the procedure followed on resolutions, and the referral to appropriate Reference Committees.

#### Resolution No. 7:

Dr. Rollin A. Daniel, Jr., Nashville, introduced Resolution No. 7 dealing with the American Medical Education Foundation, encouraging members of TSMA to contribute to this organization. The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 8:

Dr. Edward D. Mitchell, Memphis, introduced Resolution No. 8. This resolution requested approval of the House for a Major Hospital Coverage Plan for TSMA members, submitted by The American Casualty Company of Reading, Pennsylvania. The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 9:

Dr. Ralph O. Rychener, Memphis, introduced Resolution No. 9 dealing with The National Foundation. The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 10:

Dr. Rychener introduced Resolution No. 10 concerning policies of County Medical Societies and the National Foundation.

The Speaker pointed out that Resolution No. 10 was predicated on the adoption of Resolution No. 9 and directed that Resolution 10 be referred to the Reference Committee on Resolutions.

#### Resolution No. 12:

Dr. Rychener of Memphis introduced Resolution No. 12. This resolution concerned the social hour preceding the President's Banquet during the annual meeting of TSMA. The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 11:

Dr. A. B. Scoville, Jr., Nashville, introduced Resolution No. 11 regarding orientation of Tennessee State Medical Association members. The Resolution was referred to the Reference Committee on Resolutions.

The Speaker called for additional resolutions and since there were none, he stated that four resolutions presented to the Chair had not been introduced and would be presented later. The House moved to the next order of business.

#### Reports of Officers

The Speaker announced that the next order of business of the House would be to hear the Reports of Officers.

#### Report of the President

JAMES C. GARDNER, M.D.

The President reviewed his activities during his term of office covering the previous twelve months. The report pointed out the increasing responsibilities of the President



and the time, thought, and effort required by his office. The President is confronted with the ever-increasing problems of socio-economic and medical economic matters.

The President outlined his travel over the State, visiting County Medical Societies as well as trips covering the annual meeting of the American Medical Association and to Washington as a negotiator on the Medicare contract.

The report outlined accomplishments of the Association during the past year. These included, in addition to official visits to County Medical Societies, the placing into effect of the revised Tennessee Plan. Other successful activities during the year were the production of the television health information series, the formation of a Committee on Aging, the project of bringing the Tennessee Medical Foundation into closer liaison with the Tennessee State Medical Association, and activities in the field of legislation and public service.

The report pointed out that every activity in which members of TSMA are engaged, is intended to contribute to the achieving of better medical care for the citizens of Tennessee. The Association is concerned with education, licensure, insurance, public service, legislation and many other problems. The report dealt with the increasing cost of medical care and demands by many that government enter into the medical care picture and underwrite the cost of medical attention.

The President's report further recommended that every Councilor District schedule each year a meeting of the key officers of the TSMA and members of the respective county societies to discuss the Association's affairs, policies and problems.

It was further recommended that in keeping with the By-Laws, that each Councilor should make it his personal responsibility to attend as many meetings of local societies in his district as can be managed during the year.

The principal part of the President's report dealt with legislative activities in the State. He outlined the results of the recent Tennessee General Assembly and the problems involved with bills sponsored by TSMA wherein doctors throughout the State took but little action in supporting the

measures proposed by the Association. A detailed report of House Bill No. 80 and Senate Bill No. 65, which was a bill to redefine the practice of medicine, was discussed. It was pointed out that legislators must be contacted by physicians while they are at home, and not wait until they come to Nashville or go to Washington. Back home is the place where lobbying and action is required. A brief review of Forand type legislation in the national Congress was presented.

The report concluded with the statement that good medicine is an art as well as a science. No doctor can practice the art of medicine to its most successful fruition in an atmosphere of restriction.

All physicians were urged to use their talents and influence in moves to assure better government and in programs for public improvement. A plea for active and open participation in those things which would improve communities and offer greater opportunities to the citizenry. The report ended with a statement of appreciation to the association's members, officers, Board of Trustees and committees, for the honor and opportunity of serving as president.

The report of the President was referred to the Reference Committee on Reports of Officers.

#### Report of the Secretary-Editor

R. H. KAMPMEIER, M.D.

In the report of 1958 it was indicated that following a decline in pages of text over a period of several years, the pages devoted to text in 1958 totaled 530. The pages devoted to advertising having steadily increased to a high in 1958 of 754 plus 32 inserts. This clearly points to a need of expanding the non-advertising pages during the ensuing year.

As always, an attempt is made to present for the membership in the JOURNAL the many activities of the Association in its special Committees, The Board of Trustees and the House of Delegates. In addition to recording such activities in abstract, the President's Page and the Editorial Section attempt to emphasize matters which are of importance to the medical profession particularly in the socio-economic field as well as matters of policy of the Association. The

officers of the Association believe the JOURNAL may be one important route of communication with the membership and thus use it for important announcements concerning the action of its officers and special committees.

The Editor acknowledges the able assistance of Doctors Albert Weinstein and Addison B. Scoville, Jr., assistant editors.

The report of the Secretary-Editor was referred to the Reference Committee on Reports of Officers.

#### Report of the Board of Trustees

W. O. VAUGHAN, M.D.,  
Chairman and Treasurer

The Board had conducted two regular and two called meetings during the past year. An executive committee had been appointed to act between regular meetings, reporting all of their activities to the official Board. The executive committee was composed of the Nashville members of the Board: Drs. Gardner, Kampmeier and Vaughan, in addition to Dr. H. L. Monroe from East Tennessee and Dr. J. Paul Baird of West Tennessee.

The Chairman outlined the business transacted by the Board of Trustees in each of the regular and special meetings.

#### Annual Meeting—April 24, 1958—Gatlinburg

The Board transacted the following business: (1) Approved the financial audit of TSMA for the year 1957. The treasurer and executive secretary were commended for the expedient handling of the financial affairs of the Association. (2) Approved the financial operating statement for the first quarter of 1958. (3) Heard a report from Dr. James C. Gardner, chairman of a special committee appointed to study personnel and salary policies of the Association's employees. (4) Drs. Gardner, Kampmeier and Baird rendered a report upon the suggested changes in the scientific program for future years. These included a special advisory committee to the scientific program committee to be appointed and that the program committee determine the feasibility of using guest speakers from the specialty groups to address the general meeting. The Board established a \$600 fund to assist in financing of travel and expenses for guest speakers.

(5) Approved a recommendation by the executive secretary to increase advertising rates in the JOURNAL. (6) Delegated to the President, authority to appoint Councilor District Committees for Medicare administration as called for in Resolution 3 presented to the 1958 House of Delegates. A special committee on Sight Conservation was approved. (7) Appointed all standing and special committees. (8) Heard a report from Dr. Kampmeier, Editor of the JOURNAL. (9) Authorized that a method of publicity be developed to show what doctors contribute in time and money to welfare and to patients where no remuneration is received. (10) The Board directed that no public releases be made to newspapers or other information media concerning matters of policy of the Tennessee State Medical Association unless such were approved by the President or members of the Executive Committee of the Board.

#### August 24, 1958—Special Meeting

The Board met in Nashville on August 24, 1958 to discuss revisions in the Medicare program. As a result of modifications in Medicare, the meeting of the Board was called to study whether or not a recommendation should be made for TSMA to discontinue participating in the Medicare contract.

The Board heard a report from the Executive Secretary who had attended a special briefing conference conducted at the Pentagon in Washington on August 8, 1958.

The Board of Trustees directed that the Medicare Committee and the appointed negotiators proceed with negotiations for a new Medicare contract as scheduled.

#### Semi-Annual Meeting—October 12, 1958

At the semi-annual meeting in Nashville, the Board took the following action: (1) Dr. H. L. Monroe reported on action of the special committee to study the establishment of a general health committee to incorporate some of the work of present committees. No final recommendations were made. (2) Minor adjustments in the VA Hometown Care Fee schedule were approved. (3) A report of the TSMA Committee on Tuberculosis was presented by the Chairman, Dr. Hollis Johnson, along with a resolution adopted by this Committee. The resolution



recommended that TSMA go on record as recommending changes in the laws governing the admission of patients to the State's TB Hospitals so that the hospitals may legally care for medically indigent patients who have non-tuberculous chest diseases. It was further resolved that admission to the tuberculosis hospitals be subject to approval of the patient's private physician. The Board approved the recommendation and referred it to the Legislative Committee with instructions to introduce such legislation in the 1959 General Assembly. (4) The Board approved the nine-months financial statement. (5) The budget for 1959 was adopted. (6) Authorized the sponsorship of a hospitality room for use of the Tennessee Delegates to the Annual Meeting of the American Medical Association. (7) The Board heard a report from the Executive Secretary on recommendations to expand the headquarters office building. This matter was referred to the Building Committee for further study, to be reported upon at the April, 1959 meeting. (8) Dr. Gardner made a detailed report on the status of the Tennessee Medical Foundation, its operation, aims and policies. The Board adopted a resolution clarifying the views of the Trustees as to the operation of the Foundation and the resolution was forwarded to Directors and Officers of the Tennessee Medical Foundation. (9) A report was rendered by the President and Executive Secretary relative to planning for the 1959 annual meeting. (10) A report was rendered by officers of the TSMA appearing before the AMA Board of Trustees to discuss the subject of free choice of physician and the UMW A program in Tennessee. The report was accepted. (11) Studied a letter presented by the Secretary of the Washington-Carter-Unicoi County Medical Society to the Editor of the JOURNAL, recommending using the columns of the JOURNAL for political purposes. The Board determined that the JOURNAL should not be used for political discussion. (12) A report by Dr. Joseph Johnson on the growing problems of insurance and the uses and abuses outlined by the Health Insurance Council was rendered.

**Special Meeting—January 28, 1959—Nashville**

The following action was taken: (1) The Board heard a report from the Chairman,

Dr. B. M. Overholt, of the Liaison Committee to the UMW A. (2) Dr. Gardner reported on recommendations for reorganization of the Tennessee Medical Foundation. Dr. Roy McDonald, President of the Foundation, reported. It was recommended to Directors of the Foundation that the Tennessee Medical Foundation make such constitutional changes as necessary to accept three new members to its Board of Directors each year, these to be appointed by the Board of Trustees of TSMA; and that the Board of Trustees of TSMA take the necessary steps to amend the By-Laws wherein there would be created a nine-member standing committee on Tennessee Medical Foundation. The committee should also constitute the members of the Board of Directors of the Tennessee Medical Foundation. (3) A letter from the Tennessee Hospital Service Association was studied concerning practices in one of Tennessee's counties by doctors, wherein such practices resulted in increased insurance premiums and cost of medical care. (4) Studied a report from AMA's House of Delegates dealing with free choice of physicians and closed panel systems.

A resolution was adopted by the Trustees with directions that the Chairman of the Board present the resolution in the House of Delegates of TSMA in April, 1959.

(5) At the request of the National Foundation, the Board authorized the President to submit the names of three physicians in Tennessee, one of whom would be appointed by the National Foundation to serve on a Committee on Scholarships in Tennessee. (6) A report from the Public Service Committee was rendered on problems in legislation, nursing, physical examinations for drivers' licenses, press facilities at the annual meeting, and the Committee on Aging. (7) Studied a letter from the President of the Tennessee Farm Bureau Federation, dealing with a resolution adopted by that organization deploring the increasing cost of medical care. The Board directed that the question be referred to the Prepaid Insurance Committee, with the recommendation that consultations be held with representatives of the Tennessee Farm Bureau Federation. (8) With regard to the bill sponsored in the Tennessee General Assembly on the definition of the practice of medi-



cine, Board members appeared before a public hearing on the bill in the State Legislature.

#### Report of the Treasurer

The Treasurer's report contained the official audit conducted at the close of December, 1958, the audit being made by Grannis and Associates, CPA's of Nashville.

The report revealed that advertising revenue from the JOURNAL showed a healthy 19% increase due to additional copy, increase in color advertising and inserts used by advertisers. JOURNAL income for the year totaled \$44,323.31. Printing and publishing costs of the JOURNAL, pamphlets and other such material showed a marked increase for the year.

Total income of the Association during 1958 was above that anticipated in the budget, inasmuch as advertising exceeded expectations. Total expenditures for the year amounted to \$90,205.39.

The budget for 1958 was \$99,700 for the operation of the organizational and public service departments. All operations were conducted within the budget limits. The report stated that operating revenue of the Association is acquired primarily from three sources: (1) Membership dues, (2) Sale of Advertising, (3) Exhibit rental at the annual meeting. The largest source of revenue is from membership dues.

It was stated that due to the trend of inflation, plus increase in TSMA membership and spiraling costs, it takes more funds to operate each year. Programs, committee expenses, salaries and administrative costs have increased greatly in the past few years.

The report stated that the Trustees had approved for the fiscal year 1959, a budget of \$109,500. TSMA's operating funds are used to provide services to the Association's membership; to underwrite the programs of committees; to pay the salaries of the staff; and to maintain the headquarters; to operate the general business of the Association; to conduct the legislative activities and many other projects.

Higher charges for paper and labor costs require additional expenditures for publication of the JOURNAL. Expenses of AMA delegates, telephone and telegraph, printing, supplies, attorney fees, official travel and mailing costs, due to the increase in postal

rates are other requirements using additional funds.

Funds are spent primarily to keep TSMA members abreast of current developments in medicine, economics, legislation and programs to enable the medical profession of Tennessee to render better medical care.

Annual meeting costs increase each year. The cost of producing the annual meeting on the present basis runs between seven and eight thousand dollars a year.

The Treasurer summarized the report by stating that the Association is getting the maximum results possible from the dollars being spent to conduct the business of the Association. The excess of revenue over expenditures is reasonable and provides a working margin allowing for adjustments which are required throughout the year from unseen expenses and projects.

The report of the Chairman of the Board and Treasurer was referred to the Reference Committee on Reports of Officers.

#### Report of the Council

D. C. SEWARD, M.D., Chairman

At the meeting of the House of Delegates of the American Medical Association in Minneapolis last year, they suggested in part: "if county medical societies fail to accept and discharge their obligations in matters of ethics, others will assume these obligations by default."

In connection with these problems on ethics, the Chairman stated that he had received many calls throughout the year and it seemed that most members do not understand the procedure to be followed in handling matters of ethics. As interpreted in the Constitution and By-Laws, any action must be started by the County Medical Society. If dissatisfaction exists, either on the part of the society or the aggrieved person, it can be appealed to the local Council for that District and then if desired, appealed to the entire Council. If there is reason for further appeal, decision of the Council can then be appealed to the Judicial Council of the American Medical Association. The Chairman of the Council pointed out that in many instances, representatives of local societies have called with the belief that the Council should initiate the original action and some have been somewhat upset over the

fact that the Councilor has not initiated immediate action.

At the close of Dr. Seward's report, Dr. Carroll H. Long, Johnson City, discussed Article VIII, Section 3 of the By-Laws relative to the terms of office and the manner of election of councilors.

The report of the Chairman of the Council was referred to the Reference Committee on Reports of Officers.

The Speaker stated that the recommendation of Dr. Long would be referred as a recommendation to the Nominating Committee.

#### Report of Executive Secretary

MR. J. E. BALLENTINE

The report of the Executive Secretary was abstracted for conservation of time and convenience to the members of the House.

The report pointed out the expansion of the Association in membership, thus creating more requests for services from the headquarters staff. Growth in the population of Tennessee was reported, resulting in an annual increase in physician population. The report stated that the increase in the population resulted in growing pains in the fields of health and medical care. New problems and challenges have arisen as Tennessee's complex industrial and agricultural economy has been expanded.

The Executive Secretary recommended that the policy making body give thought to the following recommendations: (1) To provide services to a greater number of individual members; (2) to provide programs and activities designed to meet the health needs and demands of Tennessee's ever-increasing population; (3) to enable the Association to battle successfully with the vital issues which confront the medical profession now, and which will become more acute and numerous as our social and economic life becomes more complex. This is particularly true in the field of legislation.

TSMA in Action, was the heading for a detailed discussion of the general business of the Association. These activities were divided into five major groups as follows: (1) Business centering about membership services and benefits. (2) Business dealing with official operation of the Association's policy-making bodies. (3) Business deriving from the administration of society concerns with

reference to organized medicine. (4) Business deriving from the administration of matters with reference to associated and cooperating non-medical groups and organizations. (5) Business dealing with the relations of doctors, individually and collectively, and with the general public.

Under these five major headings, activities with county medical societies and specialty groups, the AMA, representatives of the Insurance Industry, State Government, allied professions, and many others were discussed.

The report further dealt with the membership status, pointing out that on January 1, 1959, the Association's total membership was 2,718. This represented 106 more members than at the same period one year previously. Members of AMA from Tennessee totaled 2,536 doctors. Fifty-one members died during 1958.

The cost of printing the JOURNAL was stated to be one of the most costly activities in which the Association is engaged. In 1958, the JOURNAL cost for printing and distribution was \$35,666.82.

One of the major administrative duties of the Executive Secretary is to constantly maintain direction over the Association's finances and report regularly to the Treasurer. Preparation of the budget is another responsibility. The annual audit will show the Association's finances in sound condition and with sufficient balances to operate, based on TSMA's present program.

The report outlined the status of the Medicare program. In the year 1958, 12,041 Medicare claims for doctors in Tennessee were processed. Fees totaling \$978,557.92 were disbursed to Tennessee doctors. Working with the Medicare committee and determining the fee recommendations on contested claims required considerable time.

The report included the activities of the Public Service Committee, outlining its program and special problems. It was stated that the larger county societies employ their own personnel, but the smaller societies are more dependent upon the state organization for assistance in local matters.

The revised Tennessee Plan went into effect on July 1, 1958. At present 1,076,190 Tennesseans are covered under the plan, through September 1958. Forty-one under-



writers, thirty-nine commercial companies and two non-profit associations now underwrite the Tennessee Plan.

The report covered the problems involved in presenting the annual meetings due to limited hotel facilities in the State. Fourteen specialty societies now meet concurrently with TSMA.

The report reviewed the travel required by the Executive Secretary, both within and without the State. Sixteen trips were made in conducting the affairs of TSMA, and eight out-of-state trips on official business for the Association resulted. Quarterly lectures of one hour each were made before the medical students at the University of Tennessee College of Medicine. Talks were given before 6 county medical societies and three civic groups.

The Executive Secretary's report related that the economic field presents substantial problems as a result of current changes in laws of the land. The problem of insuring the aging concerns the public in general, as well as the medical profession specifically.

The report stated that by every possible means, doctors must become stimulated to action in legislative activities, both state and nationally. Some of the highlights and results of the recent session of the Tennessee State Legislature were enumerated.

It was pointed out that TSMA is now the seventeenth largest state medical association in the United States.

The report concluded with appreciation for cooperation of the president, officers, members of the Board of Trustees, committee personnel and all members of the Association.

The report of the Executive Secretary was referred to the Reference Committee on Reports of Officers.

#### Reports of Committees

The standing and special committees were given the necessary time to make their reports where the committee chairmen felt that additional time was indicated. The following committee reports were submitted:

#### Standing Committees

Report of the Committee on Scientific Work—R. H. Kampmeier, M.D., Chairman

In response to a growing demand for out-

of-state speakers on the annual scientific program, the Board of Trustees, at the annual meeting of 1958 appropriated \$600 for the purpose of making six \$100 allotments available to guest speakers of the Specialty Societies of Tennessee which have programs at the time of the annual meeting. For this stipend each of the selected guest speakers would provide a paper of general interest to be given at one of the General Scientific Sessions. Action of the Board of Trustees also empowered the President, Dr. Gardner, to appoint a Special Committee to act in an advisory or consultative capacity to the Committee on Scientific Work. Such a committee was appointed, consisting of a representative from each of the specialty societies, with Dr. Douglas Riddell as chairman.

In the planning for the annual program, the committee on Scientific Work makes the following suggestion: That the Committee on Scientific Work as it now stands be disbanded. That the Board of Trustees appoint members to this committee annually from the specialty societies which are to receive the \$100 allotments for the next annual meeting. This should facilitate the arrangements for the program and minimize some of the difficulties met in implementing the changes for the current program.

(Though this report was accepted by the committee in general, one member objected on several grounds, which would be met by the appointment of several members of the Association at large, in addition to the representatives of the specialty societies mentioned above.)

The report was referred to the Reference Committee on Reports of Standing Committees.

Report of the Legislative and Public Policy Committee—W. W. Wilkerson, Jr., M.D., Chairman

The report of the Legislative and Public Policy Committee dealt primarily with state legislation. It was stated that the committee is charged with the responsibility of obtaining passage in the Tennessee General Assembly of those laws which have the sanction of the TSMA House of Delegates and Board of Trustees. The report stated that the committee viewed certain developments concurrent with its activities as highly sig-



nificant and alarming. TSMA instructed the committee to sponsor only three bills in the 81st General Assembly. Two of these bills were introduced as administration measures. These were a bill calling for an amendment to the Medical Practice Act which would redefine the practice of Medicine in Tennessee, and one which would permit the admission of non-tuberculous indigent patients suffering from chronic chest diseases to state-owned tuberculosis hospitals, under certain conditions.

The report stated that a third bill, drawn at the direction of the House of Delegates in 1958, would have abolished the participation of the Tennessee Department of Public Welfare in any vendor payment plan for hospitalization of indigent persons. Later, upon recommendation of the Board of Trustees, this bill was withdrawn and not introduced.

The report stated that a contact system was organized wherein a designated number of doctors throughout the state were named as legislative key men. The key men were furnished information concerning the bills which TSMA would sponsor and those which it had agreed to support. In all instances, the key men were selected in the same communities in which the legislators were elected.

The report outlined the steps necessary in the General Assembly relative to bills introduced by TSMA. The TB Hospital admission bill encountered no obstacles and was enacted.

The bill to redefine the practice of medicine encountered considerable opposition. This bill would have included in the practice of medicine the diagnosis and treatment of emotional and mental illnesses and disorders. It was strenuously opposed by psychologists who organized other para-medical groups to fight the bill.

The report stated that a series of compromise amendments to the redefinition bill were agreed upon by attorneys, and amendments were announced following a hearing by the Committee on the Public and Mental Health of the Senate. The report outlined the committee's extensive work in connection with the bill to redefine the practice of medicine. The report stated that doctors can become a potent political force if their

interest is aroused. In the case of the bill to redefine the practice of medicine, doctors did not act. The Home Rule Revenue Act, with its monetary implications, stimulated immediate and wide-spread action.

If organized medicine is to foster and promote legislation which will enable it to adapt itself to changing conditions as it endeavors to provide the best medical service to the public, individual action on the part of all its members is of prime importance. The enemies of organized medicine are numerous and highly organized.

The report pointed out that proper handling of legislative matters requires checking on each measure introduced, to determine any possible relationship to health and medicine; following the progress of such bills and reporting their status to the committee, enlisting support or opposition as indicated; keeping in touch with legislators and state officials concerned with these measures, as well as with committee members, TSMA officials and individual physicians, such as key men over the state; and making quick, effective contact by telephone, mail and in person, as needed.

The report concluded with commendation to the Executive Secretary and the Public Service Director for playing vital roles in the above activities. It was stated that they served efficiently and tirelessly in endeavoring to conduct the legislative program of TSMA.

#### Remarks by Chairman in addition to Report of Committee on Legislation and Public Policy

In addition to the prepared report, Dr. Wilkerson commented at some length on matters of legislation. He stated that the committee views certain developments concurrent with its activities as highly significant and alarming. He outlined the manner in which the bills are reviewed and sponsored. It was stated that the committee had sought the help of Governor Buford Ellington to enlist the support of his administration in securing the passage of three important bills sponsored by TSMA.

Dr. Wilkerson reported upon each bill sponsored by TSMA in the Tennessee General Assembly, tracing the bill's progress and eventual action adopted by the Legisla-

ture on each measure. He outlined the efforts made and the resulting struggle in trying to obtain passage of the controversial amendment to the Medical Practice Act which would redefine the practice of medicine. The Chairman stated that legislators were distrustful of the medical profession yet there was no selfish interest involved in medicine's attempt to secure passage of the bill. He stated that doctors can and do become a potent political force if their interest is aroused.

The Committee chairman stated that "the future of medicine is in jeopardy. We are allowing medical socialism to creep in the back door through the Forand bill, and we are allowing splinter groups, some of whom are too poorly trained, to assume the responsibility of health care. If the present trend continues, the day will come when there will be quacks practicing in Tennessee." Dr. Wilkerson outlined the successful efforts of doctors when advised that a privilege tax as proposed would place a  $\frac{1}{2}$  percent gross income tax on self-employed and professional people. Doctors of the state rose up and the bill was immediately killed. It was stated that Tennessee's two recent governors, Clement and Ellington, have been medicine's sincere friends; but they cannot function without the help of doctors throughout the state.

The Speaker stated that Dr. Wilkerson's remarks would be filed with the formal report of the Committee and referred to the Reference Committee on Reports of Standing Committees.

#### Report of National Legislation

RALPH O. RYCHENER, M.D.

The report on national legislation was rendered by Dr. Ralph O. Rychener, state "key man."

The report stated that during the closing weeks of Congress in the 1958 session, the Forand bill came up for committee hearing. United efforts of the Washington Office of the AMA, coupled with those of the state and national legislative committees in those states who had members on the House Ways and Means Committee, were made to provide evidence that this bill was not in the public interest.

Dr. Rychener's report stated that Tennes-

seans were particularly involved since Congressman Howard Baker and James B. Frazier were on the House Ways and Means Committee where this bill originated.

The report outlined methods of contact with congressmen, urging their support to defeat the Forand Bill. It was stated that the Forand Bill rates high on the agenda of labor which is now in control of the Democratic majority in Congress. This bill has now been introduced in the 1959 Congress as House Bill 4700.

The report concluded with a statement that the committee at the present time is uncertain that any satisfactory substitute for the Forand Bill will be acceptable for those who are determined to obtain this entering wedge for the socialization of medicine. The report stated that the attitude of a number of insurance companies in providing unlimited protection at reasonable cost for individuals over sixty-five, may prove to be the solution which we are seeking.

Dr. Rychener's report on National Legislation was referred to the Reference Committee on Standing Committees.

#### Report of the Liaison Committee to the Public Health Department

BLAND W. CANNON, M.D., Chairman

During the past year the principal item of business required of this committee was regarding the program to be initiated for control of the rise in hospital infections, principally staphylococcal type.

On the request of the Public Health Department, the TSMA president sent the Chairman of this committee to a regional meeting held at the Communicable Disease Center in Atlanta where a study of the problem was outlined and discussed. Subsequent to this meeting, the committee organized a report to be presented to the Public Health Council recommending a program which was formulated with the help of the Public Health representatives. This program was presented to the Public Health Council on November 19. A detailed report of the actions of the Public Health Council was forwarded to the president.

Subsequently, this report was turned over to the Committee on Hospitals. Throughout



the year a representative of the Liaison Committee has been in attendance at all Public Health Council meetings. There have been no other problems referred to the committee for action during this year.

The report was referred to the Reference Committee on Standing Committees.

#### **Report of the Insurance Committee**

B. F. BYRD, M.D., Chairman

(Report was given by Dr. Edward D. Mitchell, Memphis.)

The report gave the status of the professional overhead expense insurance plan. It was stated that 167 doctors are now enrolled in the plan. Claims paid last year amounted to \$4,209.99. The insurance carriers are not pleased with the number enrolled and will make every effort to increase the number during the year.

The sickness and accident plan carried by the Commercial Insurance Company and administered by the firm of Smith, Reed, Thompson and Ellis, now shows that 883 policies are in force, a net increase of 136 during the year. 163 new contracts have been written since the plan has been administered by this agency. 112 claims have been paid for a total \$85,403.72.

The report gave the status of the professional liability plan. It was stated that 8 claims have been paid for a total amount of \$15,186.20. The largest claim settled was for \$5,600. The doctor was alleged to have been negligent in performing an unsuccessful operation. 18 claims were settled without liability payments, though expenses for closing these were quite heavy. 13 claims are still pending, one for \$100,000. The overhead expense insurance plan will no doubt improve as a result of more aggressive efforts by the agencies handling the plan. The report stated that for more than a year, the committee had been giving serious consideration to the advisability of recommending two new plans of insurance to the membership. These are: (1) Group type type of life insurance, (2) Major hospital coverage.

The Committee recommended approval of a major hospital plan. The plan recommended is submitted by American Casualty Company of Reading, Pennsylvania. This is the company that now writes the over-

head expense insurance plan of the Association. The committee reported that the company has an adequate agency force in every part of the state and will administer the program on the local level. The report concluded by stating that the plan of the American Casualty Company is a good one, and better than others offered.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### **Report of the Memoirs Committee**

HENRY L. DOUGLAS, M.D., Chairman

(Report read by Executive Secretary, J. E. Ballentine.)

The Memoirs Committee rendered the following report: "During the year 1958, 51 members of the Tennessee State Medical Association died. The list is unusually long and accounts for nearly two percent of the total membership. As a group we must regard them as a cross-section of the society. Seldom are men able to look back over so many lives, and so much effort through the years as circumstances now reveal to us. In life, the good they did or tried to do remain among our most inspiring memories. In death they are due all the honor and glory to which the medical profession is entitled."

Following the report the names of 51 physicians who died during the year were read by the Executive Secretary. It was then moved that the House stand for a moment in silence in memory of those deceased.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### **Report of Symposium Committee on Postgraduate Education**

F. L. ROBERTS, M.D., Chairman

(Due to the absence of Dr. Roberts, the report was presented by Dr. Ben L. Pentecost, a member of the committee.)

During 1958, a total of 31 postgraduate symposia were presented in Tennessee. An average of 17 doctors attended each program.

The three subjects presented throughout the state during 1958 were: (1) "Therapy With New Drugs," with an internist, a psychiatrist and a dermatologist on each panel.



(2) "Common Urological Problems," with panels including a urologist, an internist and a pediatrician. (3) "Anesthetics in Office Practice and in Small Hospitals," with an anesthesiologist, an obstetrician and a surgeon on each panel.

The report commended the physicians who took time from their busy practice to serve as panel members.

It was stated that the subjects selected for presentation during 1959 included one surgical, one medical and one elective topic. 1959 symposium subjects are: (1) "Athletic Injuries in Common Fractures," (2) "Medico-Legal Problems," (3) "Cancer, Detection and Treatment."

The report stated that each 1958 symposium was held at a town selected by the committee according to doctor population, the need for post-graduate education programs in the area and past attendance of local physicians in that area.

An effort to increase interest by the profession resulted in a consultation program being offered as a supplement to the regular four-hour symposium. Panelists will be available at an appointed time prior to the symposium to discuss specific cases and see patients in consultation with local physicians in that area where the meeting is scheduled. A local committee is appointed in the teaching center who will supervise the efforts of getting physicians to present cases for discussion. The report stated that in this regard, the committee hopes that better utilization will be made of the services of the visiting physicians.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### Report of the Cancer Committee

RALPH H. MONGER, M.D., Chairman

The report summarized the activities during 1958. The committee aims included the development of a professional education program in the field of cancer. It was recommended that a postgraduate education program be conducted, including the assistance of the Committee on Postgraduate Education of TSMA, the TSMA Cancer Committee, and the Tennessee Division of the American Cancer Society.

The report stated that the committee re-

quested the Postgraduate Education Committee to include a program on Cancer in its 1959 schedule to cover the following topics: (1) Cancer of the Head and Neck, (2) Lymphomas, (3) X-ray Techniques of Neo-Plastic Disease, (4) Palliative Management of the Terminal Patient.

It was recommended that nurses, dentists and members of local cancer society units be invited to attend this type of symposium.

It was reported that the Postgraduate Education Committee in its regular meeting accepted the request of the Cancer Committee and a symposium was included for the 1959 program on the topic "Cancer—Detection and Treatment."

The report concluded by stating that symposiums on cancer will be conducted in Middle Tennessee during the week of September 21; in West Tennessee, the week of October 12; and in East Tennessee, the week of October 6, 1959.

The report was referred to the Reference Committee on Standing Committees.

#### Report of the Advisory Committee to the State Department of Public Welfare

JAMES N. THOMASSON, M.D., Chairman

The committee met on February 25, 1959 to discuss the subject "Hospitalization for Public Assistance Recipients."

*What it is:* The report stated that a definition was an insurance plan similar to Blue Cross covering only hospitalization costs and limited to persons whose need for a minimum subsistence grant from public funds has previously been determined by the Welfare Department. In the program, payment is not made for maternity care or chronic illness.

The report was substantiated with the following statistics: The hospitalization program initiated on December 1, 1957. Report Period—December 1957 through January, 1959. Total number of persons hospitalized 12,533; Total payment for hospitalization \$1,835,383.20; Total number of days in hospital 8.7; Average payment per day in hospital \$16.90.

The report outlined seven problems in which the Department of Public Welfare requested the committee's suggestions and advice.

The report concluded with seven recom-

mendations by the committee, which are as follows: (1) That the Medical Consultant to the Department of Public Welfare review those cases which carry a differential diagnosis and decide whether or not the medical information supports the claim for payment. (2) That there be more than one Medical Review Officer in each county in order to have one available all the time and to prevent pressure on any one doctor as one doctor hesitates to take exception to another doctor's recommendations. (3) That the local Medical Review Officer be made more aware of the Public Assistance Hospitalization Plan and the Department's problems in administering it. (4) That the hospital form be worded in order to clarify the conditions under which payment can be made and provide space for the discharge diagnosis to be recorded along with the admission diagnosis. (5) That the hospital administrator be held responsible for reporting the final diagnosis, recording it on the prescribed form and sending three copies of the form to the Department of Welfare. (6) That reducing the maximum number of days of hospitalization would save little money since the average stay in the hospital is 8.7 days. It was suggested that more careful screening might bring about a greater saving. (7) That the problems of overcharging and billing recipients be taken up by the Welfare Department with the hospital administrator.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### Report of Grievance Committee

CHAS. C. TRABUE, IV, M.D., Chairman

The committee reported that no grievances were submitted and therefore a meeting was not required during the year.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### Report of the Prepaid Insurance Committee

JAMES A. KIRTLEY, JR., M.D., Chairman

Since the last annual report to the House of Delegates, the Prepaid Insurance Committee had conducted only one formal meeting. The year had seen the activation of the \$300 revised Tennessee Plan schedule

which was put into effect on July 1, 1958. On July 1, 1959, all of the old \$200 schedules will have been changed over to the \$300 plan.

It was reported that a brochure outlining the features of the revised Tennessee Plan, together with policy provisions, conditions and a list of the greatly expanded schedule, participating doctors and underwriting companies, had been mailed every member of TSMA.

The report stated that the committee had conducted dual work during the past year, administering the old plan and at the same time getting the revised plan operating.

At the close of the year, 1,076,190 persons in Tennessee were covered under the plan. 1,523 doctors are participating in the plan.

The report stated that many new problems face the committee and it has been necessary to give consideration to these problems as a result of changing economic conditions.

On March 5, 1959, the committee met in Nashville to discuss action taken in the form of a resolution adopted by the Tennessee Farm Bureau Federation and referred to the Board of Trustees of TSMA. In November, 1958, the Farm Bureau adopted a resolution deploring the rising costs of medical care.

The report stated that key officers of the Farm Bureau met with the insurance committee and these representatives made the following comments: (1) In order to make voluntary prepaid health insurance work, it was stated that the fact that voluntary prepaid health insurance is to be a permanent part of our system of health, must be recognized by doctors. (2) There must be recognition of the fact that doctors have a responsibility to make voluntary prepaid health insurance succeed. (3) It was recommended that a carefully studied plan be developed by the Tennessee State Medical Association based on what the average physician can and should do to make insurance plans succeed. (4) That an educational program to disseminate such information should be developed among members of the medical association to the end that each member should make his greatest possible contribution to make voluntary prepaid insurance work. The Farm Bureau repre-

sentatives also called for a greater participation in the Tennessee Plan by doctor members of TSMA.

As a result of these recommendations, the committee went on record as recommending a rededication by doctors in Tennessee to the principles of Voluntary prepaid health insurance, particularly the Tennessee Plan. The committee recommended that a program should be developed for better understanding of the Tennessee Plan by doctors of the state. Also, that liaison be made with hospital authorities toward working on solutions to the problem of increasing medical care costs.

In keeping with the recommendation of the House of Delegates of AMA in December, 1958, where a request was made to state medical associations to study and develop a plan of voluntary prepaid insurance to cover persons in the age group of 65 and above, the Prepaid Insurance Committee recommends that a resolution be presented to the House of Delegates for an insurance plan for the aged. Resolution No. 4 presented to the 1959 House of Delegates, contains the recommendations of the committee.

The committee also considered a report to study the cost of covering infants in the first two weeks of life for surgical and medical care under the Tennessee Plan. The report stated that the study should be made for the usual coverage, but with the understanding that it would exclude circumcisions and newborn care.

The report concluded by stating that legislation on the order of the Forand Bill, or similar legislation, made it extremely urgent that organized medicine get underway at once to find the best possible means to finance the medical care of our aged population.

#### Medicare

The Medicare report was made by Dr. James A. Kirtley, Jr., chairman. The Medicare program saw constant modifications during 1958. On October 1, 1958, due to greatly reduced funds made available to Medicare by Congress, drastic reductions were put into effect by the Department of Defense. After October 1, 1958, the following conditions applied. Spouses and children of active duty personnel were not entitled to the following, if such services were provided

outside of military facilities. They were: (1) Injuries or illnesses which are not directly related to a period of hospitalization. (2) Pre and post surgical tests before and after hospitalization. (3) Neo-natal visits (The two well-baby visits authorized after Mother and child leave the hospital.) (4) Combination visits (those instances where one physician sees a patient initially and transfers the patient to the care of another physician at the time of hospitalization). (5) Treatment of nervous and mental diseases. (6) Elective surgery.

On November 3 and 4, 1958, a new contract was negotiated between TSMA and the Department of Defense. This contract did not greatly change the previous one except that a further breakdown in the schedule was made, wherein more than one doctor was involved with the care of the patient.

The contract negotiated included a maximum ceiling on all procedures. No fee schedule was adopted. The report further outlined the reasons for this step, stating that in the 1958 House of Delegates, a resolution was adopted requesting that TSMA negotiators should seek a schedule that contained usual and customary fees for service, rather than a fixed fee schedule.

A special article was published in the February, 1959, issue of the JOURNAL, outlining the Medicare program as it exists in Tennessee. It was stated that Resolution No. 2 was introduced by the Medicare Committee in this session of the House of Delegates to further clarify the status of Medicare in Tennessee.

Constant amendments, modifications and problems that come to the Medicare Committee are handled daily through the headquarters office and the state committee.

With the new contract now in effect, and in keeping with the resolution adopted by the House of Delegates one year ago, District Medicare Committees have been established in each of the ten Councilor Districts throughout the state. These committees are familiar with conditions and the normal fees within the area. Whenever a Medicare claim is made beyond the ceiling for a given procedure, the claim is referred by the fiscal agent to the proper District Medicare Committee where the claim originated. The committee makes a recommendation for



charges and returns it to the fiscal agent for final processing. In controversial cases, an appeal can be made to the state Medicare Committee.

The report concluded by stating that the Executive Committee of TSMA's Prepaid Insurance Committee composes the Committee on Medicare. During 1958, there were 12,041 Medicare claims processed. Fees totaling \$987,557.92 were disbursed to doctors in Tennessee.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### **Report of the Public Service Committee**

ADDISON B. SCOVILLE, JR., M.D., Chairman

During 1958, a number of important projects have been continued and new ones instituted by the Public Service Committee.

One of the chief accomplishments had been the establishment of four poison control centers in Jackson, Nashville, Chattanooga and Johnson City, making Tennessee one of the leaders in the field of poison control centers.

One of the many problems confronting medicine concerns the aging population. The Forand bill has been introduced in Congress relative to this problem. Between seven and eight out of every one hundred Tennesseans are 65 years of age or older; and as the years progress, a greater proportion of the population will fall into this old age group. A subcommittee on aging has been appointed to consider the various facets of the overall problem facing this age group and their relationship to the community.

It was pointed out in the report that the Tennessee Council on Aging has been formed. The objectives of the Council are: (1) Identifying and analyzing the health, social and economic needs of Tennessee's aging. (2) Appraising available resources for the aged. (3) Suggesting programs to improve the well-being of the aged. (4) Stimulating interested organizations and agencies to implement such programs.

Appointment of the Public Service Committee's subcommittee on nursing marks an important step in establishing a better relationship for this member of the health team. The report reviewed the Public Service Committee's study on the matter of the medical association's sponsoring legislation

in the 1959 General Assembly which would require periodic physical re-examination for persons holding driver's licenses.

The committee found that such legislation should not be sponsored, but should be endorsed and supported by organized medicine in Tennessee.

One of the committee's major endeavors during the past year had been to attempt to resolve the differences now existing in the state between the programs for medical and hospital care of the indigent.

Particular emphasis during the year has been placed on the health education program. Twelve voluntary and official health agencies joined together to present a series of fourteen health information programs on a Nashville television station. The group, calling itself The Television Health Information Series, is continuing its plans to present similar programs in other television cities of the state.

The report pointed out the contribution which practicing physicians made to their communities in terms of free medical service, donations to charity, civic activities and teaching activities in the state's three schools of medicine. These matters were brought to the attention of the public in a news release issued by the Public Service Committee.

Tennessee physicians contributed nearly \$13,000,000 annually in free medical service, cash gifts, and this information was widely publicized.

The report stated that the continuing programs of the Public Service Committee include the presentation of public relations courses for medical assistants, the operation of two placement services for physicians and communities, and advising county medical societies on methods to improve public service within their communities.

The report pointed out that projects in their preparatory stage include a series of orientation conferences for new and transferred members to acquaint these persons with the important inter-relationship which exists between them and organized medicine on the county, state and national level. Another endeavor is a state-wide athletic injury clinic to be sponsored jointly with the Tennessee Secondary School Athletic Association.

The report concluded with the statement that by conducting such programs as outlined, medicine will regain some of the stature that many of its critics feel it has lost in recent years.

The report was referred to the Reference Committee on Reports of Standing Committees.

#### **Report of the Rural Health Committee**

RAE B. GIBSON, M.D., Chairman

The Rural Health Committee had no official report. It was stated that this did not mean that members of the Committee were inactive, since many projects were assisted by members of the committee during the year.

The report was referred to the Reference Committee on reports of Standing Committees.

#### **Report of Committee on Hospitals**

HARRY T. MOORE, JR., M.D., Chairman

At the 1958 TSMA meeting, a resolution was adopted by the House of Delegates which instructed the committee to institute a study regarding the mounting economic and ethical problems among full-time and part-time medical school faculties, private physicians, interns, residents and hospitals. The committee complied with these instructions.

A summary of the committee's findings showed that: (1) some hospitals put monies collected for insurance from patients who were admitted or treated by the resident or intern staff into a special fund for resident education, resident and house staff parties, or to finance trips for residents to medical meetings; (2) some hospitals use these funds to help finance research projects undertaken by residents; (3) funds are used to pay the salaries of residents and interns; (4) some hospitals use the funds for full-time staff men in charge of the service.

The committee had found conditions existing between hospitals and physicians which were believed to be the corporate practice of medicine, to conflict with the AMA's Principles of Medical Ethics and in violation of the laws of the State of Tennessee. The committee studied statements of policy and the definition of unauthorized practice of medicine as declared by other state medical associations.

The report dealt with the preliminary investigation of the staphylococcus infection problem, and the recommendations of the Public Health Council for formulating plans toward control and prevention of hospital infections, as recommended by the Liaison Committee to the Public Health Department. A statewide promotional program will be carried out urging each county medical society to take the following measures: (1) Appoint a local committee to promote the prevention and control of hospital infections. (2) Establish inspection teams to assist the hospitals in their staphylococcal prevention program. (3) Establish inter-hospital or county infection committees to prevent the spread of infection from hospital to patients and personnel. (4) Urge hospitals to establish infection committees. (5) Assist hospitals in these programs.

The report stated that the committee requested that liaison be officially established between the Tennessee State Medical Association and the Tennessee Hospital Association, for the purpose of developing policy between the two organizations. A letter from the president of TSMA was directed to the president of the Hospital Association, requesting the appointment of a liaison committee to meet with the TSMA committee on Hospitals, to discuss problems involving hospitals and the medical profession.

The report was referred to the Reference Committee on Reports of Standing Committees. This completed the reports of standing committees.

#### **Nominating Committee**

The Speaker requested the delegates of the three grand divisions of the state to congregate in three respective areas of the room for the purpose of organizing a Nominating Committee. The Speaker appointed three temporary chairmen of the grand divisions for organization and election of a permanent Nominating Committee.

Dr. J. Paul Baird, Dyersburg was appointed as temporary chairman for the West Tennessee division; Dr. Addison B. Scoville, Jr., Nashville, temporary chairman for Middle Tennessee division; and Dr. Hiram Laws, Jr., Chattanooga, was appointed to act as temporary chairman for the East Tennessee division.



Following this announcement, the Speaker declared a ten-minute recess.

(Recess)

Following the recess, the Speaker called the House to order and announced the personnel of the Nominating Committee which consisted of:

Dr. Hiram Laws, Jr., Chairman,  
Chattanooga

Dr. Rae B. Gibson, Greeneville

Dr. B. M. Overholt, Knoxville

Dr. Cloyce Bradley, Nashville

Dr. T. R. Ray, Shelbyville

Dr. Carl Gardner, Columbia

Dr. John D. Hughes, Memphis

Dr. Byron O. Garner, Union City

Dr. J. Paul Baird, Dyersburg

The Speaker announced that important business should be transacted at the earliest convenience of the Nominating Committee. It should furnish the names of the candidates for Councilors from the Second, Fourth, Sixth, Eighth and Tenth Districts. The Nominating Committee should make a report for nominations of Councilors later in the afternoon.

The Speaker announced that the House would continue with hearing reports of Special Committees. The following special committee reports were rendered.

#### Special Committees

##### Report of Committee on General Practice

C. B. ROBERTS, M.D., Chairman

The Committee on General Practice had been active during the past year in planning a program of pre-school examinations for children in those rural areas where the services of a public health department were not available. A pilot model program is now operating in White County. Six physicians are cooperating with members of the County Dental Society to conduct examinations of pre-school children.

The report stated that the program will prove its value to other county medical societies in the state, particularly in those areas where public health facilities are not available.

The Committee worked diligently with members of the 1959 General Assembly. It was pointed out the necessity of close and constant liaison between members of the

medical profession and their legislators, on the local level. Close liaison between doctors and legislators must be firmly established and closely maintained in order that lawmakers can learn, first hand, the merits or weaknesses of any proposed legislation dealing with the health of Tennesseans, the report stated.

The committee has been active in promoting the health education program of the State Medical Association through utilizing radio as a means of informing rural groups of how individual and community health standards can be improved. The report stated that radio stations are eager to cooperate with medical groups in presenting such programs to their listeners. The blood program in White County has been exceeded upon two different occasions.

The report concluded by calling for better understanding and closer relationships between general practitioners and the specialists. Problems should be resolved in an atmosphere of friendly cooperation and the report recommended that efforts in this direction be carried out by each component medical society in the State.

The report was referred to the Reference Committee on Reports of Special Committees.

##### Report of the Committee on Civil Defense

MOORE MOORE, JR., M.D., Chairman

The report stated that no meetings had been held during the year. This had been due partly to physician and public apathy concerning the entire subject of civil defense.

The report recommended that the TSMA adopt the recommendation of AMA's Council on Civil Defense and re-name this committee, "The Committee on Disaster Planning." It was recommended that the committee continue with its work and that members' terms should be staggered so as to allow continuity in planning and action.

The report recommended that radiation monitoring should not be done by the medical profession, but rather by specially trained teams outside of the profession. It was further recommended that this problem should be turned over to the State Director of Civil Defense. Parts of the report dealt with legislation as it affects laws regarding



immunity from civil suits and exemption from licensure concerning allied medical personnel. The report recommended that close liaison be maintained with the hospitals of the state. A statewide model law should be enacted concerning regulation of speed, staffing and training of personnel of ambulances as well as equipment.

The report concluded by stating that active steps should be taken to integrate activities of the TSMA into the Tennessee Plan which assumes a warning period of several hours, official notification of the public through radio, police network, etc. and evacuation of citizens to adjoining areas by family units.

The report was referred to the Reference Committee on Reports of Special Committees.

**Report of the Liaison Committee to the  
United Mine Workers of America**

B. M. OVERHOLT, M.D., Chairman

The Committee met on three occasions during the year to discuss the various problems relating to relationship between the United Mine Workers of America and organized medicine. The committee met on one occasion with the Board of Trustees of TSMA in order to effect a workable solution between certain hospitals, providing medical care for UMWAs beneficiaries and the Area Administrator's Office of the UMWAs.

The committee reported that proceedings of these meetings had been forwarded to the Board of Trustees of the Tennessee State Medical Association. The committee is studying further problems referred to it involving organized medicine and the United Mine Workers of America Welfare and Retirement Fund.

The report was referred to the Reference Committee on Reports of Special Committees.

**Report of Committee on Industrial Health  
and Workmen's Compensation**

GENE H. KISTLER, M.D., Chairman

(Report read by Executive Secretary, J. E. Ballentine)

The Committee on Industrial Health and Workmen's Compensation has carried out routine duties, mostly concerned with supplying information upon request to physicians over the state as to procedure in indi-

vidual cases involving relationships between patients and employers, and matters pertaining to insurance companies.

The committee has also taken cognizance of amendments to the Workmen's Compensation Law enacted by the 1959 Tennessee General Assembly. The more important include increasing the maximum medical and hospital payments from \$1,500 to \$1,800, raising the minimum weekly benefits to \$34, and the death benefits to \$12,500. Another amendment requires that the employer furnish the employee with a copy of the medical report in the case of any claim for benefits.

A meeting of the Committee was not deemed necessary.

The Report was referred to the Reference Committee on Reports of Special Committees.

**Report of the Advisory Committee to the  
Woman's Auxiliary**

JOSEPH D. ANDERSON, M.D., Chairman

The report stated that the Woman's Auxiliary to the Tennessee State Medical Association requires little of their advisors time under ordinary circumstances. The report outlined the instances in which the Advisory Committee is asked to function. The chairman of the committee was asked to help upon two occasions and stated that it was a pleasure to serve as chairman of the Advisory Committee to the Auxiliary.

The report was referred to the Reference Committee on Reports of Special Committees.

**Report of the Committee on Governmental  
Medical Services**

CHARLES R. ZERKLE, M.D., Chairman

(Read by Dr. Baker Hubbard, Jackson)

The Committee on Governmental Medical Services had not found it necessary to meet during 1958. The primary function of the committee is to study veteran's care problems. Considerable action occurs in the Congress where various bills are introduced from time to time concerning veteran's medical care.

The principal activity involving the committee during the past year was the result of the 1957 committee's action, wherein a revised schedule of fees was negotiated between the TSMA and the Veterans Admin-

istration, covering the VA Hometown Care Program. The schedule was greatly simplified and many procedures discontinued, but the fees for the more frequent procedures were increased.

During 1958, the Veterans Administration further suggested some additional revisions in the schedule which were favorable to doctors participating in the program, and these changes were approved by the Board of Trustees.

The report approved the revisions made and these were included in the contract that went into effect on July 1, 1958, for the revised schedule on the hometown care program.

The report concluded by stating the committee should continue to be cognizant of any and all changes in the Veterans Administration program, and that careful study and consideration should be given to these activities on the state and national levels.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of the Committee on Blood Banks**

MERLIN L. TRUMBULL, M.D., Chairman

Since the last annual meeting, no particular problems had been brought before the committee and for this reason, no official meetings had been conducted. The committee report called attention to a matter developing at the national level in reference to blood banks, believing that it is of concern to all physicians. The report stated that this has reference to thought and conversations being given by the Joint Blood Council concerning a "national blood program."

Contact of the Joint Blood Council with the AFL-CIO executive council has been made, and on November 7, 1958, the union council issued a forthright statement in support of "a national uniform voluntary system of blood banks." The report stated that other thoughts expressed in this document are disturbing and unrealistic in reference to the utilization of blood. It is further disturbing that this contact with the labor group has been made, particularly in view of the fact that in certain parts of the country, aggressive efforts to unionize hospital personnel are being made.

The report concluded by stating that this

report is submitted for the information of the House of Delegates and no action is sought.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of Committee on Tuberculosis**

HOLLIS E. JOHNSON, M.D., Chairman

The Tuberculosis Committee report dealt primarily with the changing of existing laws governing admission to tuberculosis hospitals. The diminishing hospital population in several states has resulted in closing some TB hospitals. The report pointed out that in other states, some changes in the law were contemplated, wherein the division of tuberculosis control is a complete monopoly for the treatment of diseases of the chest.

The report stated that the committee favored making it possible for medically indigent persons with chronic non-tuberculous chest diseases to be admitted to the state tuberculosis hospitals.

Secondly, the committee felt that a law governing this type of admission to tuberculosis hospitals should be enacted, which would be acceptable to the Tennessee Department of Public Health and to the medical profession of the state. The report stated that this had been accomplished in the resolution that was presented by the committee to the Board of Trustees of TSMA. The resolution was approved and the legislative committee presented this recommendation in the form of a bill before the Tennessee General Assembly in 1959. A law was adopted by the legislature in keeping with the resolution.

The report further pointed out the method and procedure followed by the committee in presenting the resolution of the Tuberculosis Committee to the TSMA Trustees and subsequently to the legislature.

An unintentional change in the law enacted was discussed. This matter has been satisfactorily worked out between the committee and state health authorities. The Commissioner of Health agreed, in order to clarify the wording of the controversial section that the existing law will be changed at the 1961 session of the legislature in keeping with that which was originally recommended by the Tennessee State Medical Association's committee.

The report concluded by requesting that a sub-committee of the legislative committee study the existing law and bring its recommendations to the next meeting of the Legislative Committee for action.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of the Committee on Mental Health**

FRANK H. LUTON, M.D., Chairman

It was reported that no formal meeting of the committee had been conducted during the past year. The chairman was active and coordinated the work of this committee with the Committee for Study of the Definition of Medicine and Medical Practice. It was also pointed out that the two committees had worked closely with the Legislative and Public Policy Committee.

The principal work of the committee, in conjunction with other committees, has been to work for the purpose of strengthening the physician's role as an unlimited practitioner of medicine.

The report further summarized the goals and functions of the committee. They were:

- (1) Matters of liaison between the TSMA and activities within the state in the field of Mental Health. The report pointed out the importance that physicians be aware of the policies, philosophies, programs of education, attitudes towards physician-state hospital relationships, maintenance of standards of physicians and all key personnel attitudes towards research, training and prevention.
- (2) Development of methods for further training of physicians in the understanding and treatment of the mentally ill.
- (3) Stimulation of physicians to participate in community programs of mental health.

The report stated there are now some fourteen local mental health associations, all with memberships largely of laymen who feel the need to do something about the problem of mental health. It was pointed out that the goals of these groups should be carefully guided and directed by informed medical persons. It was stated that one such group was started by a sociologist and the problems growing out of this could be of grave concern to the House of Delegates. Policies should be formulated that would be helpful to physicians in whose communities such programs are being organized.

Other functions of the Mental Health Committee have been to liaison with committees on mental health from county medical societies and with mental health committees of the Woman's Auxiliary; liaison with the State alcohol Commission in the promotion of educational programs for the treatment and prevention of alcoholism.

It was recommended that during the next two years, every effort should be made to acquaint all members of TSMA with the facts concerning relationships between medicine and the para-medical groups to the end that when another attempt is made to modify the Medical Practice Act, every physician will be impelled to exert his influence to the fullest extent in places where it will be useful.

The committee report stated that it strongly recommends legislation that will give the physician the right of privilege communication. The psychologist, the minister and lawyer now have such provisions.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of the Committee on Health Project Contest**

MRS. W. D. BURKHALTER, Chairman

The committee report stated that the sixth annual health project contest had been an outstanding success. A record number of high schools participated. Twenty-five entries were submitted, each representing a completed health project in a Tennessee Community.

The Hay Long High School Science Club at Mt. Pleasant, Tennessee was the winner of the first place award.

The winning project carried out an intensive tuberculosis detection campaign in the community. As a result of the efforts of the members of the Science Club, 457 persons received tuberculin skin tests. Thirty-seven positive reactions were found.

The second place winner was Cloudland High School at Roane Mountain in Carter County, Tennessee. A \$500 bond was presented to representatives of the winning project, given by the Tennessee State Medical Association, and the second place winner received a \$100 award from the Woman's Auxiliary.



The report stated that certificates of merit will be presented to two regional winners, the Webb School Health Class of Carroll County and the psychology and sociology classes of Chattanooga Central High School.

The report concluded by calling to the attention of the members of the TSMA, the value of the health project contest as a means of stimulating the interest of Tennessee's youngsters in promoting good health within their communities.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of the Committee on Medical Legal Relations and Interprofessional Code**

EDWARD T. NEWELL, JR., M.D., Chairman

The committee held no meeting nor took special action on any matter related to this committee during the year since there was no request from either the Board of Trustees, the President of the Association or from the Executive Secretary.

The committee report recommended that the House of Delegates consider mailing a copy of the revised Interprofessional Code in pamphlet form to all the doctors of the Tennessee State Medical Association. The committee realized that this code was printed in the Tennessee State Medical Journal, but felt that the majority of the doctors would like a copy of the code to keep in their office. The committee also recommended that the Tennessee State Medical Association urge the Tennessee Bar Association to mail a copy of this code to all members of the Bar Association.

The report was referred to the Reference Committee on Reports of Special Committees.

#### **Report of the Study Committee on Legal Definition of Medicine and Medical Practice**

FRANK H. LUTON, M.D., Chairman

It was pointed out that the Amendment of the Medical Practice Act was readied for presentation to the 1959 Tennessee General Assembly. The proposed amendment would extend the definition of Medical Practice to include the diagnosis and treatment of emotional and mental disorders and affections.

The proposed act intended to support the

full and complete practice of the profession of medicine historically and traditionally, and also to protect the physician from restriction by any of the splinter groups who are licensed to perform acts similar to certain of the acts traditionally performed by medicine.

Much work and preparation was carried out with the Committee on Legislation and Public Policy and liaison with various physicians in the state as well as to the Commissioner of Public Health.

The proposed amendment as presented in the Tennessee General Assembly by the Legislative Committee met with flaming resistance by the psychologists, ministers, optometrists and similar groups. A hearing before the Senate Committee on Public and Mental Health required the entire auditorium of the House of Representatives to hold the hundreds of members of these groups along with a very small group of physicians. It was reported that some 5,000 letters and telegrams were forwarded to individual legislators by the opponents to the bill to redefine the practice of medicine.

The most surprising experience of the measure was the fact of suspicion and of the motives of the doctors by some legislators. Due to the many revisions and amendments to the bill, it was not acceptable and the Tennessee State Medical Association was able to get the bill withdrawn.

It was stated in the report that paramedical groups, particularly the psychologists, operate on a nationwide scale and are well financed to combat medical legislation in most states. These groups use all possible forces to support their efforts to further solidify their legal acceptance as practitioners of the healing arts.

The report called for the best organization and talent in the medical association to combat these forces in future legislatures. It was pointed out that this problem should be presented to doctors of Tennessee so clearly in every type of communication available, that everyone will be aware of the dangers that are *here now*.

The report was referred to the Reference Committee on Reports of Special Committees.

## Report of the Tennessee Committee to the American Medical Education Foundation (AMEF)

LOUIS ROSENFELD, M.D., Chairman

The report stated that 85 medical schools of the U.S. are in great need of financial help. For this reason, the American Medical Association established the AMEF. The purpose of the AMEF is to solicit money from physicians throughout the country and to forward such funds as unmarked donations to the various medical schools.

The report called for an all-out effort of physicians to help support medical education.

The report stated that at present, federal and state grants for support of medical schools comprise 46% of the average medical school budget. Tennessee physicians are not carrying out their fair share. In 1956, Tennessee physicians contributed \$9,169 to AMEF. \$6,000 of this amount was contributed by the Hamilton County Medical Society.

In 1957, a total of \$7,719 was donated, and in 1958 only \$6,916 was contributed. The Woman's Auxiliary of TSMA was highly commended for their efforts and contributions to AMEF.

The report stated that in addition to unmarked gifts, there were 602 contributors in 1958 that made gifts earmarked to one of the three medical schools in the state. It is important for physicians of Tennessee to participate in this worthwhile project in a much broader and substantial way. It was further revealed in the report that many states contribute 100% in Membership participation.

The report stated that the Davidson County Delegation would submit a resolution to the House of Delegates for a voluntary donation by all members of the TSMA for advancement of medical education, both in Tennessee and throughout the country.

The report concluded with special commendation to the president of TSMA, the editor of the JOURNAL and to the Woman's Auxiliary for their magnificent contributions to the American Medical Education Foundation.

The report was referred to the Reference Committee on Reports of Special Committees.

## Special Reports

### Report of Woman's Auxiliary to TSMA

MRS. HORACE D. GRAY, President

Public Service is one of the chief aims of the Auxiliary, and this theme was emphasized through the year, especially pointing out the role of the doctor's wife in community service. The health project had been one of the chief programs of the Auxiliary.

Members actively participated in selling Today's Health Magazine. Auxiliary members participated nationally with programs on Mental Health, Civil Defense and Safety. Every Auxiliary had programs on these subjects during the year.

The report revealed a unique project wherein teaching of swimming to mentally retarded children was undertaken with 17 receiving beginner's cards.

Civil defense has been kept before the Auxiliary by programs, literature distributed at meetings, and letters written to key people by Civil Defense Chairmen.

The report pointed out that safety is a program which constantly increases in importance. Every auxiliary had safety programs, one being illustrated with slides and showing actual safety problems in the county. The president of the Auxiliary attended the President's Conference on Traffic Safety for the southeastern region, the meeting being held at Miami Beach in May, 1958.

One of the most important projects during the year, was the recruiting of students for para-medical careers. Support to the American Medical Education Foundation was outlined. It was reported that \$2,012.70 had been given to AMEF.

Recruitment continues to be one of the principle projects conducted. Auxiliary members are found working in every community activity. These include PTA, Health Programs, Red Cross, Blood Banks, Salk Vaccine, Scouts, Volunteer Health Drives and community services of every type.

Every Auxiliary had held programs on legislation, civil defense, safety and mental health. Many of the county auxiliaries have had reports of legislation at every meeting. Key legislative matters on the state and national level have been followed with efforts

to support or oppose legislation deemed best for medicine.

The report concluded by stating that the membership during 1958 had increased from 1,278 to 1,324. For the Auxiliary to survive, it must be supported by doctors.

The report was referred to the Reference Committee on Reports of Special Committees.

#### Report of Delegates to the AMA

CHARLES C. SMELTZER, M.D., Chairman

Dr. Smeltzer, acting chairman of the AMA delegates, outlined the business transacted at the two meetings in 1958 of the House of Delegates of the American Medical Association.

At the June meeting in San Francisco, discussion concerned two resolutions adopted in 1957. These included Resolution 20, "a broad educational program to be instituted by the AMA to inform the general public, including the beneficiaries of the UMWA Fund, concerning the benefits to be derived from preservation of the American fight to freedom of choice of physicians and hospitals as well as observance of the guides to relationships between state and county medical societies and the UMWA Welfare and Retirement Fund."

The AMA House of Delegates voted 110 to 72 to amend the Reference Committee report to show that the AMA headquarters staff be directed, under supervision of the Board of Trustees to proceed at once with the campaign which was originally ordered in 1957, to render a broad educational program to doctors and the public.

The report reviewed the appearance of Dr. B. M. Overholt, a TSMA Vice-President, and Dr. Charles Smeltzer, AMA Delegate, before the AMA Board of Trustees relative to discussing with the members of the Board on general principles and policies governing third parties.

The report covered action on social security coverage for physicians. It was recommended by the AMA House that any opinions expressed on social security should be in the form of a poll taken on a state by state basis and such results transmitted to the AMA delegates from the respective state societies. Other topics covered at the June meeting included voluntary health organiza-

tions, veterans medical care, the Medicare program, functions of the Washington Office of the AMA and over-the-counter medications.

At the meeting conducted in Minneapolis on December 2-5, 1958, the principal subjects covered were health care of the aged and the highlights of this discussion and action were reviewed in the report.

Work of the Commission on Medical Care Plans was outlined in considerable detail and the AMA House deferred action until the June 1959 meeting.

Two important items were referred to the respective state medical associations—free choice of physicians and closed panel systems.

The House recommended that the Board of Trustees invite the constituent associations to forward their policy adopted on these matters to the Executive Vice-President at least sixty days in advance of the June 1959 meeting. Other important subjects covered were in the field of osteopathy. Actions of the House on this matter were related.

The Medicare program was also covered in the report. The restricted program of Medicare was outlined, with arguments pro and con for the continuation of Medicare.

The report concluded by covering many of the detailed problems involving Medicare and the discussions that were presented to the House of Delegates of the AMA.

#### Report of the Tennessee Medical Foundation

ROY L. McDONALD, M.D., President

The Tennessee Medical Foundation has completed 5½ years of activity in its endeavor to work with communities interested in better medical care.

The report traced how the Commonwealth Fund enabled the Foundation to get started in September, 1953. The work of the first full-time field secretary was outlined with supervision rendered by the Board of Directors and the Foundation's Committee on Health and Medical Care.

The report stated that the field office was discontinued July 1, 1957, following the termination of the grant from the Commonwealth Fund.

Community leaders appreciate the willingness of the Foundation to confer with



them on local problems in the field of health and medical services, and to plan a practical approach to these problems.

The book "Medical Services for Rural Areas" which describes the Foundation's history and activities has been favorably reviewed in numerous medical journals. The report went into some detail outlining the work accomplished by the Foundation during 1958, outlining the services rendered to several new communities which had requested advice and counsel from the Foundation. These services included surveys of hospital needs, securing of physicians, studies for improvement of the quality of medical service, the introduction of consultants in rural practice settings, and provisions for assistance in organizing rural education programs.

The report outlined the method wherein representatives from the Foundation met with members of the Board of Trustees of TSMA to explore ways and means of increasing the effectiveness of communication and liaison between the two organizations. The Foundation's lack of activity in Middle and West Tennessee should be studied. It was stated in the report that no doubt these areas needed the services of the Foundation and that the projects carried out in the past, particularly in East Tennessee, should be essentially regarded as an experimental or pilot plan.

If activities such as engaged in by the Foundation are not carried out by organized medicine, this responsibility will be transferred to some other type of organization who could perhaps not offer the right kind of help and guidance to the people of Tennessee.

The report concluded by stating that a most rewarding experience lies ahead for those physicians who are willing and able to contribute significantly, not only to the Welfare of the profession, but to all the people of the state. The future of the program is limited only by the full-understanding and support of the physicians of Tennessee.

The Speaker stated that all special reports would be referred to the Reference Committee on Reports of Special Committees.

#### Committees Not Reporting

The Standing Committee on Physical

Therapy did not submit a report. Special committees not reporting were:

Labor Liaison Committee

Liaison to Tennessee State Dental Association

Study Committee for Expansion of General Practice of UMWA

Sight Conservation

The Speaker announced that the next order of business would be the introduction of additional resolutions.

#### Introduction of Additional Resolutions

The Speaker announced that the House was proceeding on schedule and the introduction of additional resolutions or amendments was in order.

Resolution No. 2:

Dr. James A. Kirtley, Jr., Nashville, introduced Resolution No. 2 dealing with Medicare and urging participating physicians in the program to charge their usual and customary fee for services. The Resolution was referred to the Reference Committee on Resolutions.

Resolution No. 4:

Dr. Kirtley introduced Resolution No. 4 regarding Prepayment Insurance for the aged population. This Resolution was referred to the Reference Committee on Resolutions.

Resolution No. 5:

Dr. Harry T. Moore, Jr., Nashville, introduced Resolution No. 5 regarding the definition of unauthorized practice of medicine. This Resolution was referred to the Reference Committee on Resolutions.

Resolution No. 6:

Dr. Moore introduced Resolution No. 6 concerning payment involving services rendered by house staffs in hospitals. This Resolution was referred to the Reference Committee on Resolutions.

The Speaker called for introduction of fraternal delegates or guests and since there were none present, the Speaker passed to the next order of business which was the presentation of supplemental reports. There were no supplemental reports to be submitted.

### Report of the Reference Committee on the Nomination of the Outstanding Physician of the Year Award

The Speaker announced that the next order of business would be the Report of the Reference Committee on Physician of the Year Award, and the election.

Dr. Chas. C. Trabue, IV, Chairman, Nashville, presented the report of the Reference Committee. The committee submitted, in keeping with requirements, the names of three physicians for this award. They were:

Dr. J. W. Oursler, Humboldt  
Dr. Tom Mitchell, Memphis  
Dr. J. O. Walker, Franklin

The Speaker called for the customary three-minute nominating speeches for each of the candidates.

Dr. G. H. Berryhill, Jackson, spoke in behalf of Dr. Oursler. Dr. John Davis Hughes, Memphis, spoke in behalf of Dr. Tom Mitchell and Dr. R. H. Hutcheson, Nashville, spoke in behalf of Dr. J. O. Walker of Franklin.

Following the nominating speeches, the Speaker asked members of the House to prepare their ballots. Tellers were appointed to count the ballots.

### Election of Councilors

The Speaker again announced the names of physicians composing the Nominating Committee and called upon Dr. Hiram A. Laws, Jr., Chairman, to present the slate of councilors selected by the Nominating Committee.

Dr. Laws stated that the committee had nominated Dr. Joseph L. Raulston, Jr. of Knoxville for Councilor from the Second District; Dr. Thurman Shipley, Cookeville, for Councilor from the Fourth District; Dr. Laurence A. Grossman, Nashville, Councilor from the Sixth District; Dr. Frank A. Moore, Jackson, Councilor from the Eighth District and Dr. Duane M. Carr, Memphis, Councilor from the Tenth District.

The Speaker called for additional nominations from the floor. None were made.

It was moved from the floor that the Speaker cast the unanimous vote for all candidates nominated. The motion was seconded by Dr. Hutcheson, put to a vote and *the motion was unanimously adopted.*

### Introduction of Additional Amendments or Resolutions

The Speaker called for additional amendments or resolutions and there being none, he asked if there was any other old business to be presented. There was none and the Speaker called for new business. No new business was introduced.

### Announcements

It was announced that the Nominating Committee would meet on Monday, April 13, at 9:30 A.M. The Resolutions Committee announced that it would meet on the evening of April 12, in Room 1061 at 8:30 P.M. Monday, April 13, the Resolutions Committee would meet in Room 214 at 8:30 A.M. Other Reference Committee Chairmen announced the time and place where their committees would conduct meetings.

### Election of Physician of the Year

The result of the balloting for the Physician of the Year Award was announced and Dr. Tom Mitchell of Memphis was named the Outstanding Physician of the Year in Tennessee for 1959.

There being no further business to be presented, in the first session, the House recessed at 5:35 P.M. until 9:00 A.M. Tuesday, April 14, 1959.

### TUESDAY MORNING SESSION

#### April 14

The House of Delegates reconvened at 9:00 A.M. in the Peabody Hotel, Memphis, with Dr. Joseph W. Johnson, Jr., Speaker of the House, presiding.

Dr. Roy McDonald, Oneida, Chairman of the Credentials Committee, reported that a quorum was present and all credentials in order.

The first order of business was the introduction of additional Amendments.

### Introduction of Additional Amendments

#### Amendment No. 4:

Dr. Carroll H. Long, Johnson City, introduced an Amendment to the By-Laws, Amendment No. 4, as follows:

"Amend Chapter VII, Section 1, Section 2 and Section 3 by eliminating the reading contained in these sections and substituting the following: Section 1. The Council shall

hold meetings during the annual meeting of the Association, and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet after the election of Councilors on the second day of the Annual Session for organization, and for the outlining of work for the ensuing year. At this meeting it shall keep a permanent record of its proceedings. Five Councilors shall constitute a quorum.

"Section 2. Each Councilor shall be the representative of the Tennessee State Medical Association in his district in matters pertaining to the conduct of members and of component societies. He shall make investigations and suggest solutions of problems which come to his attention. He shall make annually a written report of his activities to the Council.

"Section 3. The Council may recommend to the House of Delegates censure, suspension, or expulsion of any member; or recommend to the House of Delegates censure or revocation of the Charter of any component Society after a hearing before such persons and in such manner as the Council shall direct; or may suspend or drop from membership any member for the nonpayment of dues. Any member shall be dropped from membership automatically upon the filing by any person with the Council of a certified copy of the final order of revocation of license of such member by any tribunal of competent jurisdiction. Any member suspended, expelled, or dropped from the membership may be reinstated by the affirmative vote of the majority of the House of Delegates upon recommendation of the Council. It shall make such report or recommendations to the House of Delegates as it deems to the best interest of the Association."

The Speaker of the House pointed out that amendments to the Constitution and By-Laws introduced on the second day of the session must lay on the table for one year. Therefore Amendment No. 4 will lie on the table for one year and can be taken up for action on the first day of the annual session of the House of Delegates in 1960.

The Speaker stated that the next order of business would be the introduction of additional resolutions.

### Introduction of Additional Resolutions

(Complete Resolutions as presented to House of Delegates begin on Page 239.)

#### Resolution No. 16:

Dr. Carl A. Hartung, Chattanooga, Chairman of the Reference Committee on Resolutions introduced Resolution No. 16 which would establish a committee named "The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans." The Resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 17:

Dr. Carl C. Gardner, Jr., Columbia, read Resolution No. 17 submitted by the Council commending Dr. D. C. Seward for his service as a member and chairman of the Council for many years. This resolution was referred to the Reference Committee on Resolutions.

#### Resolution No. 18:

Dr. John D. Hughes, Memphis, read Resolution No. 18 introduced by the Reference Committee on Resolutions. This resolution dealt with the problem confronted by the Resolutions Committee in reviewing resolutions presented in the second session of the House. It was requested that resolutions not be introduced in the second session unless of extreme urgency.

Dr. Hughes spoke further to the resolution stating that he believed that this was a motion that should not be placed before a deliberative body. He stated that he believed that this resolution was out of order, and he would recommend modifying the By-Laws in such a way as to encourage the utilization of Sunday for the preparation of all resolutions.

There was further discussion by other members of the House.

As a result of this discussion, the Speaker of the House of Delegates ruled the resolution to be out of order. The Speaker called upon members of the House to try and hold discussion upon resolutions to three to five minutes, due to the great amount of work of the Reference Committee and the action necessary by the House.

The Speaker pointed out that three additional resolutions were before the Chair, although the person submitting the resolutions, Dr. Frank Luton, was not present. Dr. William A. Garrott offered to read the



resolutions in the absence of Dr. Luton, since he was familiar with the contents.

Resolution No. 13:

Dr. Wm. A. Garrott, Cleveland, read Resolution No. 13. This resolution concerned a bill to amend the Tennessee Code to provide privilege communication for physicians. This Resolution was referred to the Reference Committee on Resolutions.

Resolution No. 14:

Dr. Garrott presented Resolution No. 14 concerning an amendment to the Medical Practice Act. This Resolution was referred to the Reference Committee on Resolutions.

Resolution No. 15:

Dr. Garrott presented Resolution No. 15 dealing with the development of mental health clinics without informed medical supervision and control. This Resolution was referred to the Reference Committee on Resolutions.

The Speaker stated that the next order of business would be the introduction of guests. He presented Mr. V. O. Foster, Executive Secretary of the Southern Medical Association, Birmingham, Alabama.

Regarding the issuance or suspension of county society charters, there were none before the House.

Report of Nominating Committee on  
Election of Officers

DR. HIRAM A. LAWS, JR., Chairman,  
Chattanooga

The Speaker called for the report of the Nominating Committee and stated that the House would proceed with the election of officers. The Chairman of the Nominating Committee submitted the following report.

The Nominating Committee placed the names of Dr. Ralph O. Rychener, Memphis; Dr. Thomas V. Banks, Dyersburg; and Dr. Malcolm T. Tipton of Union City, for the office of President-Elect.

The Speaker called for nominations from the floor and there being none, he asked members of the House to prepare their ballots.

Dr. Duane Carr, Memphis, requested permission to speak a word of support. Permission was granted and Dr. Carr spoke in behalf of the candidacy of Dr. Ralph O. Rychener. He concluded his remarks by expressing hope that the House would elect

him as President-elect of the Tennessee State Medical Association.

The Speaker appointed Dr. Roy McDonald, Dr. Irving Hillard, Dr. Moore J. Smith and Dr. Laurence Grossman as tellers to count the ballots. Dr. McDonald was asked to act as chairman of the tellers and make the report.

After a brief recess, Dr. McDonald reported for the tellers that Dr. Ralph O. Rychener was elected to the office of President-elect of the Tennessee State Medical Association.

The Speaker appointed Dr. James C. Gardner, Dr. Wm. C. Chaney and Dr. Chas. C. Trabue as a committee to escort the new President-elect and introduce him to the scientific assembly.

The Speaker directed the Chairman of the Nominating Committee to proceed with other nominations.

The Nominating Committee placed the name of Dr. Joseph W. Johnson, Jr., of Chattanooga for the office of Speaker of the House.

The Vice-Speaker, Dr. J. Malcolm Aste assumed the Chair. Dr. Johnson was unanimously elected as Speaker of the House of Delegates. Speaker Johnson resumed the Chair.

The Nominating Committee presented the name of Dr. J. Malcolm Aste of Memphis for the office of Vice-Speaker of the House. There being no further nominations, Dr. Aste was elected by acclamation for the office of Vice-Speaker of the House of Delegates.

The Nominating Committee presented the name of Dr. R. H. Kampmeier of Nashville for the office of Secretary-Editor. There being no further nominations, Dr. Kampmeier was elected by acclamation as secretary-editor.

The Nominating Committee placed the name of Dr. Wm. J. Sheridan of Chattanooga as Trustee from East Tennessee for a three-year term. There being no nominations from the floor, Dr. Sheridan was unanimously elected to the Board of Trustees for a three-year term.

The Nominating Committee placed the name of Dr. David Taylor of Dyersburg for the office of Vice-President from West Tennessee.

Dr. Paul Baird arose to clarify the point of a candidate being registered and in attendance at the meeting. The matter of attendance was clarified to the satisfaction of the House and Dr. Taylor was declared eligible, and as a result was elected Vice-President from West Tennessee.

The Nominating Committee placed the name of Dr. J. M. King of Tullahoma for Vice-President from Middle Tennessee. There being no further nominations, Dr. King was elected Vice-President from Middle Tennessee.

The Nominating Committee placed the name of Dr. John H. Burkhart of Knoxville as Vice-President from East Tennessee. There being no further nominations, Dr. Burkhart was elected Vice-President from East Tennessee.

The Nominating Committee presented the name of Dr. Daugh W. Smith of Nashville as Delegate to the American Medical Association from Middle Tennessee, for a two-year term. There being no other nominations, Dr. Smith was elected by acclamation to serve a two-year term as delegate to the AMA from Middle Tennessee.

The Nominating Committee placed the name of Dr. Rudolph H. Kampmeier of Nashville as alternate delegate to the American Medical Association from Middle Tennessee. There being no further nominations, Dr. Kampmeier was elected by acclamation as alternate delegate to AMA from Middle Tennessee.

The Nominating Committee placed the name of Dr. Wm. C. Chaney of Memphis as delegate to the AMA from West Tennessee to serve a two-year term. There being no further nominations, Dr. Chaney was elected unanimously to serve a two-year term as delegate to the AMA from West Tennessee.

The Nominating Committee placed the name of Dr. Harold B. Boyd of Memphis as alternate delegate to the AMA from West Tennessee for a two-year term. There being no further nominations, Dr. Boyd was unanimously elected as alternate delegate to the AMA from West Tennessee for a two-year term.

The terms of office for the delegates and alternate delegates elected will begin on

January 1, 1960 and expire on December 31, 1961.

The Nominating Committee presented the names of the following six physicians for the Public Health Council, three from East Tennessee and three from West Tennessee, two of whom will be subsequently appointed by the Governor. The names presented were: Dr. Carl A. Hartung of Chattanooga; Dr. Louis A. Killeffer, Harriman; Dr. E. L. Caudill, Jr., Elizabethton; Dr. John R. Thompson, Jr., Jackson; Dr. Marvin A. Blanton, Jr., Union City; and Dr. Ben L. Pentecost, Memphis.

There being no other nominations from East or West Tennessee, the nominees were unanimously elected. The names of the six physicians will be submitted to the Governor who will appoint two to serve on the Public Health Council.

The Nominating Committee named three physicians from West Tennessee for the Board of Trustees of the State Tuberculosis Hospitals. One will be subsequently appointed by the Governor. The names of Dr. David Taylor, Dyersburg; Dr. S. G. Robbins, Memphis, and Dr. Wm. B. Acree, Ridgely, were presented. The three nominees were unanimously elected.

The Speaker announced that election of Dr. Rychener caused a vacancy on the Board of Trustees and requested that the Nominating Committee make a recommendation for Trustee from West Tennessee.

After a short intermission, the Chairman of the Nominating Committee placed in nomination, the name of Dr. John D. Hughes of Memphis as Trustee from West Tennessee to fill the unexpired term of Dr. Rychener. There being no other nominations, Dr. Hughes was elected as a member of the Board of Trustees for one year to complete the unexpired term of Dr. Rychener.

This completed the report of the Nominating Committee.

#### **Report of the Reference Committee on Amendments**

DR. CHAS. C. TRABUE, IV, M.D., Chairman

(Complete Amendments as read before the House begin on pages 210 and 238.)

Dr. Trabue stated that the Reference Committee had received no proposed

amendments to the Constitution. Three proposed amendments to the By-Laws were to be acted upon.

Amendment No. 1:

Dr. Trabue stated that the amendment proposed that Chapter VIII, Section 1 (a) of the By-Laws be amended by deleting item No. 10—A Committee on Physical Therapy. It also proposed that Chapter VIII, Section 11 be amended by deleting Section 11 in its entirety. This section described the duties of the Committee on physical therapy.

The Reference Committee moved that these amendments be adopted. The motion was duly seconded, put to a vote, and **the amendments were adopted.**

Amendment No. 3:

The Reference Committee approved the adoption of Amendment No. 3 which would amend Chapter VI, Section 5 by substituting for the words "Executive Secretary," the words "Executive Director" wherever such words appeared in this section. The Reference Committee moved the adoption of this amendment. The motion was duly seconded, put to a vote, and **the amendment was adopted.**

Amendment No. 2:

The Reference Committee Chairman asked permission of the Speaker to postpone the report of the Committee on Amendment No. 2 until after the Report of the Reference Committee on Resolutions inasmuch as Resolution No. 3 had to do with this Amendment.

Following the action on Resolution No. 3, the Chairman of Reference Committee on Amendments completed his report.

Amendment No. 2 would amend Chapter VIII, Section 1 (a) of the By-Laws by adding a new section entitled "Committee on Tennessee Medical Foundation." Also Chapter VIII would be amended by adding at the end a new section to read: "The Committee on Tennessee Medical Foundation shall consist of nine members to be appointed by the Board of Trustees, the members to serve terms of three years each, with three members to be appointed each year; that the first appointments shall be made for the following terms: three members for three years; three members for two years and three members for one year, with all

subsequent appointments to be for terms of three years.

"The Committee shall formulate the policies and determine the program of the Tennessee Medical Foundation. It shall have the general management and control of the activities of the Foundation. The Committee, through its chairman, shall make an annual report to the House of Delegates.

"At all meetings of the Committee, five members shall constitute a quorum for the transaction of business.

"The Chairman of the Committee shall be appointed by the Board of Trustees.

"The duties of the Committee shall be to study the problems involved with medical care in rural and isolated areas and to assist in providing medical care to such areas. Other duties shall be the extension of medical knowledge, the advancement of medical science, the elevation of the standard of medical education and the prevention and cure of disease.

"The Committee on Tennessee Medical Foundation may establish such subordinate committees as necessary to conduct the business of the Foundation. The Committee on Tennessee Medical Foundation shall also constitute the members of the Board of Directors of the Tennessee Medical Foundation."

The Reference Committee approved the adoption of these two amendments to Chapter VIII, except that it recommended deletion of the last sentence in Paragraph 5 which reads as follows: "Other duties shall be the extension of medical knowledge, the advancement of medical science, the elevation of the standard of medical education and the prevention and cure of disease."

The Reference Committee chairman stated that the language spelled out the duties of the Tennessee Medical Association rather than the Committee on Tennessee Medical Foundation. The Committee recommended that the language established for the Tennessee Medical Foundation should be the first sentence in Paragraph 5 which reads: "The duties of the Committee shall be to study the problems involved with medical care in rural and isolated areas and to assist in providing medical care to such areas."

The Reference Committee moved that



Amendment No. 2 as amended by the Committee be adopted. The motion was duly seconded.

Dr. Daugh W. Smith, Nashville, discussed the Amendment stating that he felt that the Amendment should remain as it was originally presented, in view of the fact that it changed the By-Laws of the Tennessee Medical Foundation as originally established.

Dr. Trabue further discussed the Amendment pointing out that the By-Laws of the Tennessee State Medical Association were being amended and not those of the Tennessee Medical Foundation.

Following discussion, the motion was put to a vote and carried and **Amendment No. 2 as amended by the Reference Committee was adopted.**

The Chairman of the Reference Committee moved that the Report of the Reference Committee on Amendments be adopted as a whole. The motion was duly seconded, put to a vote and **the Report of the Reference Committee on Amendments was adopted as a whole.**

The Speaker called for the report of the Reference Committee on Resolutions, requesting the Chairman, Dr. Hartung, to make his report. Following is the report with the recommendations and amendments suggested by the Reference Committee.

#### Report of Reference Committee on Resolutions

CARL A. HARTUNG, M.D., Chairman,  
Chattanooga

##### No. 1

#### Resolution on Report of AMA Commission on Medical Care Plans

By: W. O. VAUGHAN, M.D.

WHEREAS, at the meeting of the House of Delegates of the American Medical Association at Minneapolis, in December 1958, the House received the report of the Commission on Medical Care Plans, and

WHEREAS, the AMA Reference Committee recommended that all State Medical Associations be asked to study the report, particularly as to (1) free choice of physician, and (2) closed panel systems, and

WHEREAS, the respective State Medical Associations were requested to advise the Executive Vice-President of the AMA sixty days before the June meeting of the AMA

House of Delegates of the policy adopted by the State Association, and

WHEREAS, the Board of Trustees of TSMA has studied the AMA report and directed the Chairman of the Board to submit this resolution to the TSMA House of Delegates, and

WHEREAS, since the concept of free choice of physician remains one of the most desirable relationships between physician and patient, and

WHEREAS, it is certainly in the interest of the patient to encourage when possible, such freedom of choice, and

WHEREAS, it is recognized that other methods and plans for patient care exist, now therefore be it

RESOLVED, that the AMA should maintain continuing, critical and, where merited, constructive support of such methods and plans which provide for sound medical care and that the attitude of organized medicine toward physicians participating in such plans and methods include not only the customary appraisal of the physician but an appraisal of the method or plan as it relates to the well being of patients.

The Reference Committee recommended adoption of this Resolution. The motion was duly seconded, put to a vote and **the Resolution was adopted.**

##### No. 2

#### Resolution on Medicare

By: JAMES A. KIRTLEY, JR., M.D.

WHEREAS, in April 1958, the House of Delegates approved Resolution 3, submitted by the Committee on Medicare, which opposed a fixed fee for service schedule, and

WHEREAS, the Resolution urged that doctors be allowed under Medicare, to charge their usual fees, as normally charged to private patients and instead of a fixed fee schedule, a maximum ceiling be negotiated, and

WHEREAS, a contract that went into effect December 1, 1958, has been negotiated for dependents of service personnel between the Department of Defense and the Tennessee State Medical Association, and

WHEREAS, at the time that the contract was negotiated, it was requested by the Department of Defense that the schedule of fees be the doctors' regular charges made

to private patients within the community, and

WHEREAS, there was no fee schedule adopted, but a maximum ceiling negotiated for all procedures, and

WHEREAS, state medical associations generally have not published a fee schedule, but have asked participating doctors to make their regular charges, as usually made to private patients for those coming under the Medicare program, and

WHEREAS, if a published fee schedule was forwarded to the membership, this would violate the intent of the existing contract and further confuse participating physicians, since Medicare restrictions put into effect on October 1, 1958 now disallow many of the procedures listed in the nomenclature of the schedule. Now therefore be it

RESOLVED, that the House of Delegates of TSMA adopt the policy that no publication listing any allowances be printed or forwarded to the membership since this would only confuse participating doctors as to what is allowed for payment under the program at present, and be it further

RESOLVED, that the House of Delegates go on record as urging physicians participating in the Medicare Program to make their regular charges as usually made to private patients.

The Reference Committee recommended adoption of the Resolution. The motion was seconded, put to a vote and **the Resolution was adopted.**

### No. 3

#### Resolution on Tennessee Medical Foundation

By: JAMES C. GARDNER, M.D.

WHEREAS, much study had been given to the policies and activities of the Tennessee Medical Foundation by the Board of Trustees of TSMA, as well as by the Board of Directors of the Tennessee Medical Foundation, and

WHEREAS, recommendations from the Board of Trustees of TSMA have been made to the Board of Directors of the Foundation, toward bringing the Foundation's program and activities into closer relationship with TSMA and its governing body, the House of Delegates, and

WHEREAS, the Board of Directors of the Tennessee Medical Foundation has re-

quested that the Foundation's program of activities be brought into closer relationship and directed by the Tennessee State Medical Association. Now therefore be it

RESOLVED, that the House of Delegates approve the following plan: (1) That the Tennessee Medical Foundation make such constitutional changes as necessary to accept three new members to its Board of Directors each year, as shall be appointed by the Board of Trustees of TSMA. (2) That the necessary amendments be made to the By-Laws of TSMA to add a standing committee on Tennessee Medical Foundation. (3) That the House of Delegates approve the creating of a nine-member standing committee of TSMA to direct the activities and programs of the Foundation. Three members of the committee are to be appointed each year to serve for three year terms. The nine-member standing committee will also constitute the members of the Board of Directors of the Tennessee Medical Foundation. (4) The Committee on Tennessee Medical Foundation shall make an annual report to the House of Delegates on all of the activities and policies of the Foundation. (5) That the Committee on Tennessee Medical Foundation conduct its program, activities and perform its responsibilities following the established policy and procedures as other standing committees of the Tennessee State Medical Association.

The Reference Committee recommended adoption of this Resolution. The motion was seconded, put to a vote, and **the Resolution was adopted.**

### No. 4

#### Resolution on Prepaid Insurance for the Aged Population

By: JAMES A. KIRTLEY, JR., M.D.

WHEREAS, the Prepaid Insurance Committee of TSMA recognizes the importance of organized medicine taking effective steps to present a plan of medical insurance to cover the aged of our population in Tennessee, and

WHEREAS, In the December, 1958, meeting of the House of Delegates of the AMA, action was taken to request each state medical association to study the establishment of an insurance plan for the aged, and

WHEREAS, Forand type legislation is imminent unless organized medicine presents some workable plan for financing the medical care of the aged, and

WHEREAS, physicians recognize that hospitalization remains the largest cost of medical care, and which contains cost factors that are both significant and beyond the control of doctors of medicine, and

WHEREAS, the Prepaid Insurance Committee of TSMA urges continuing study by hospital associations of methods which may meet by voluntary prepaid insurance, the cost of such hospital care for the aged. Now therefore be it

RESOLVED, that the House of Delegates of the Tennessee State Medical Association approve the study and establishment of a plan of surgical and medical benefits for Tennessee citizens over age 65, with the plan to be designed along the lines of the present Tennessee Plan, and be it further

RESOLVED, that such a plan will be known as the Senior Citizens Policy of the Tennessee Plan, with the policy designed to offer certain fee concessions to be made by doctors relative to the service features as relating to surgical and medical benefits for those individuals over age 65, where total income is not more than \$3,000 per year, and with necessary stipulations set forth in order that a practical premium may be obtained on such insurance for the older citizens, and be it further

RESOLVED, that the present underwriters of the Tennessee Plan and other interested underwriters, be promptly consulted as to their interest and advice on the premiums, policy structure and benefits for such a Senior Citizens Policy of the Tennessee Plan, and be it further

RESOLVED, that since benefits for anesthetics are not included in the Tennessee Plan at present, that studies be made to see if such benefits can be included in a Senior Citizens Policy, and be it further

RESOLVED, that if and when the TSMA Prepaid Insurance Committee finds that a workable plan can be recommended, that this matter be brought before the House of Delegates in a special or regular session.

The Reference Committee recommended the following changes. It amended the first "Whereas" to read "Whereas, the Prepaid

Insurance Committee of the Tennessee State Medical Association recognizes the importance of organized medicine taking effective steps to present a plan of medical insurance to lessen the danger of financial catastrophe to the aged without ignoring their economic obligations."

The Committee also recommended that the second "Resolve" be amended to read as follows: "*Resolved*, that such a plan will be known as the 'Senior Citizens' policy of the Tennessee Plan with a policy designed to offer certain fee concessions to be made by doctors relative to the service features as relating to surgical and medical benefits for those individuals of age 65 whose total income is not more than \$3,000 per couple per year, or \$2,400 per single person per year, and where the traditionally responsible parties are economically unable to provide aid; and with necessary stipulation set forth in order that a practical premium may be obtained on such insurance for the older citizens."

The Committee recommended adoption of the Resolution as amended by the Reference Committee. The motion was seconded.

The Speaker stated to the House that it was his opinion that this was a general amendment to the Resolution and that the House was being asked to consider the question of the Resolution as a whole as amended.

The motion was put to a vote, and **the Resolution as amended was adopted.**

#### No. 5

#### Resolution on Definition of Unauthorized Practice of Medicine

By: HARRY T. MOORE, JR., M.D.

WHEREAS, it has been declared by some other state medical associations that an unauthorized practice of medicine occurs when a partnership (other than a partnership composed solely and exclusively of physicians), association, institution, corporation or unlicensed person furnishes, or contracts or offers to furnish, the professional services of a duly licensed physician under terms, conditions or circumstances whereby such organizations or unlicensed person: (1) directly or indirectly makes its or his own charge to the patient (or to any other



person, partnership, association, institution or corporation claimed to be liable for the obligations of the patient) for the professional services performed by such licensed physician; or (2) directly or indirectly obtains or retains the whole or any part of the charge or fee paid for such professional services, whether such professional charge or fee is separately billed or paid, or is included in the total charge billed by, or paid to, such partnership, association, institution, corporation or unlicensed person; or (3) directly or indirectly participates in the division or sharing of the whole or any part of any professional fee or fees of such licensed physician; or (4) receives payment or compensation in any form for, or derives any pecuniary gain, reward or benefit from, the performance of the professional services of such licensed physician. Now therefore be it

RESOLVED, that any licensed physician who is a party to, or who aids or abets, such unauthorized practice of medicine thereby subjects himself to the charge of violating the principles of medical ethics and also of violating the Tennessee Code, Section 63-618.

The Reference Committee recommended that this resolution **not be adopted**.

The Reference Committee went into detail to explain its views on this Resolution. It highly commended the Hospital Committee for introducing the Resolution. The Reference Committee Chairman stated that Resolution No. 5 as written was being recommended for rejection, and that the Reference Committee on Resolutions wished to introduce Resolution No. 19 to replace Resolution No. 5. The motion to reject Resolution No. 5 was seconded.

Dr. Trabue moved that the motion to reject Resolution No. 5 be tabled. The motion was seconded, put to a vote and **the motion to reject Resolution No. 5 was tabled**. The Reference Committee Chairman was asked to present Resolution No. 19.

#### No. 19

#### Resolution as a Substitute for No. 5

By: CARL A. HARTUNG, M.D.

WHEREAS, corporate practice of medicine in Tennessee has never been defined, and

WHEREAS, numerous third party plans are now in effect in Tennessee, and

WHEREAS, it is contemplated that further encroachment on the private and unlimited practice of medicine may be expected. Now therefore be it

RESOLVED, that the Council of the Tennessee State Medical Association study the problems of corporate practice of medicine and third party plans in Tennessee, in consultation with the hospital committee and all interested parties, and be it further

RESOLVED, that a complete report of recommendations concerning these problems with appropriate resolutions be reported by the Council to the House of Delegates of the Tennessee State Medical Association at its next regular session.

Dr. Chas. Trabue spoke on the resolution pointing out that the Committee on Hospitals had spent a great deal of time studying the problem and further, that Resolution No. 19 referred the matter to the Council without specific instructions. Dr. Trabue submitted an amendment to the Resolution to the effect that the Council be requested to study this matter during the next year and to report at the first session of the 1960 House of Delegates. The motion to amend was seconded.

The Resolution and amendment were discussed by Dr. Carroll Long, Chairman of the Council. Dr. Long offered another amendment to eliminate the word "complete" in the second "Resolve" of Resolution No. 19. Dr. Long's motion was seconded, put to a vote, and **the Amendment to eliminate the word "Complete" in the second "Resolve" of Resolution No. 19 was adopted**.

Dr. Carl Gardner, Columbia, offered suggestions to clarify language in Resolution No. 19 in the first "Resolve."

Dr. Merlin L. Trumbull, Memphis, questioned the Reference Committee on the desirability of transferring the study, required in the Resolution, from the Committee on Hospitals to the Council. He pointed out that the Hospital Committee had studied this matter completely and it was his opinion that the Hospital Committee should continue with the study during the coming year, consulting and cooperating closely on the study with the Council. He made a motion that the matter be referred not to

the Council, but to the Committee on Hospitals to be reported upon at the 1960 meeting of the House of Delegates.

Dr. John Hughes, Memphis, spoke for the Reference Committee stating that it was felt that if the Resolution as originally worded were passed, or if an amendment or substitute should pass, and if a year from now the Council recommended vigorous action along the lines that many of the members of the House hoped it would recommend, then undoubtedly questions of ethics would come up and then this would be a matter for the Council.

Drs. Grossman and Long, members of the Council, also discussed the Resolution. Dr. Long pointed out that it would perhaps be wiser for the Council to work in collaboration with the Committee on Hospitals if the Committee on Hospitals could work in collaboration with the Council.

Dr. Trumbull made the motion that Resolution No. 19 be studied by the Hospital Committee in close consultation with the Council and reported upon by the Hospital Committee at the 1960 meeting of the House of Delegates.

The motion was seconded, put to a vote, and **Resolution No. 19 as amended was adopted.**

The Speaker stated that Resolution No. 19, as substituted for Resolution No. 5 and as amended, was to be referred to the Hospital Committee for study and continuing consultation with the Council, and that the joint action of the Council and the Hospital Committee was to be presented before the House as a recommendation at its next regular session. The matter was further discussed and clarified wherein the responsibility of reporting to the House rested with the Hospital Committee.

#### No. 6

#### Resolution on Payment Involving Services Rendered by House Staffs

By: HARRY T. MOORE, JR., M.D.

WHEREAS, any patient who enters a hospital or a hospital emergency room should be given free choice of a private physician, and

WHEREAS, those patients who are treated as house staff cases and upon discharge it is found that they have insurance

or other funds to pay for medical treatment, that the funds be disposed of in a definite manner, and

WHEREAS, a special fund should be set up by the medical staff and its disposition controlled by the medical staff of any hospital maintaining a house staff, and

WHEREAS, a reputable physician should be designated to collect such funds and turn them over to a special fund governed by the medical staff of that hospital, and

WHEREAS, the funds should be used in a definite manner for intern and resident education and research, or as an alternative and if it is the desire of the governing body of the medical staff, that such funds should be donated to the medical library of that institution where both medical staff and house staff may derive benefits. Now therefore be it,

RESOLVED, that the House of Delegates direct the members of the Tennessee State Medical Association to administer this matter within the hospitals of which they are staff members, and be it further

RESOLVED, that upon adoption of this resolution the president of the Tennessee State Medical Association will send a letter to the president, with a copy to the secretary, of each county medical society, suggesting that this matter be discussed with their membership and that each hospital staff be requested to follow the policy outlined in the contents of this resolution, and be it further

RESOLVED, that in the letter forwarded to county society officers be a request to the effect that the county medical society take action to instruct the medical staff of each hospital as to their responsibility for the organization, control and audit of this special fund.

The Reference Committee recommended a number of changes in the Resolution. There was discussion and several amendments introduced to the Resolution and the House was unable to clarify the question.

The Speaker recommended that Resolution No. 6 be referred back to the Reference Committee on Resolutions for a re-wording and returned to the House for further action.

The Reference Committee on Resolutions retired to further study and re-word Reso-

lution No. 6. The Committee returned to the floor and submitted a re-wording of Resolution No. 6 as follows:

**Resolution on Payment Involving Services  
Rendered by House Staffs**

WHEREAS, patients are sometimes admitted to hospitals or hospital emergency rooms where their financial status is in doubt or undetermined, and

WHEREAS, such patients should be classified as private patients when investigation prior to completion of treatment determines them to be not medically indigent by virtue of adequate funds, income, insurance or third party responsibility and

WHEREAS, some patients are admitted as service patients and are found subsequent to treatment to have coverage, therefore be it

RESOLVED, that a special fund should be set up by the medical staff for the receipt of such monies and its disposition controlled by the medical staff of any hospital maintaining a house staff, and further

RESOLVED, that a reputable physician should be designated to collect said funds and turn them over to a special fund governed by the medical staff of that hospital and be it

RESOLVED, that the funds should be used in a definite manner for intern and resident education and research or as an alternative and if it is the desire of the governing body of the medical staff, that such funds should be donated to the medical library of that institution where both medical staff and house staff may derive benefits or such manner as determined by the active medical staff, and be it

RESOLVED, that the House of Delegates direct the members of the Tennessee State Medical Association to administer this matter within the hospitals of which they are staff members, and be it

RESOLVED, that upon adoption of this resolution the president of the Tennessee State Medical Association will send a letter to the president, with a copy to the secretary, of each county medical society, suggesting that this matter be discussed with their membership and that each hospital staff be requested to follow the policy outlined in the contents of this resolution, and be it further

RESOLVED, that in the letter forwarded to county society officers be a request to the effect that the county medical society take action to instruct the medical staff of each hospital as to their responsibility for the organization, control and audit of this special fund.

The Resolution was read by Dr. Hartung and he moved the adoption of the revised Resolution.

The motion was seconded. There followed considerable discussion, however, the Speaker put the question to a vote and **the Revised Resolution No. 6 was adopted.** There was a standing vote and five "No" votes were counted. **The Speaker declared passage of the Resolution.**

**No. 7**

**Resolution on American Medical  
Education Foundation**

By: LOUIS ROSENFELD, M.D.

WHEREAS, the American Medical Education Foundation has been established by the American Medical Association and its administrative expenses paid by the American Medical Association; and

WHEREAS, the purpose for which it has been established is to solicit money from physicians to be distributed among the eighty-five medical schools of this country to further medical education; and

WHEREAS, it is essential that physicians aid in furthering medical education both to help in some way to repay their respective institutions for their education and also to lessen the dependency of the medical schools on Federal Government grants; and

WHEREAS, the medical organizations of several of the forty-nine states have assessed each of their respective physicians from \$15.00 to \$25.00 per annum, which monies are turned over to the American Medical Education Foundation; and

WHEREAS, only a very small number of Tennessee physicians have made a yearly contribution to the American Medical Education Foundation; and

WHEREAS, it is the best tradition of Tennessee physicians to participate fully in any worthwhile project relating to the furtherance of the private practice of medicine and thereby to keep the field of medicine as free as possible from the encumbrances of federal participation; Now therefore be it



RESOLVED, that the House of Delegates of the Tennessee State Medical Association go on record as advocating a minimum contribution in the sum of \$25.00 from each member of the state medical organization, and be it further

RESOLVED, that the Tennessee State Medical Association write each year to every physician in its organization informing him of its belief in the worthiness of the American Medical Education Foundation and its objectives and in said communication request that each physician send directly to the American Medical Education Foundation headquarters in Chicago a minimum of \$25.00 per year, which money is to be forwarded to the medical school of his choice, if he so desires, or to be put into the general fund to be divided equally among the eighty-five medical schools.

The Reference Committee moved the adoption of this Resolution. The motion was seconded, put to a vote and **the Resolution was unanimously adopted.**

No. 8

Resolution on Major Hospital Coverage  
for TSMA Membership

By: EDWARD D. MITCHELL, M.D.

WHEREAS, the Tennessee State Medical Association Committee on Insurance has for a year been studying additional insurance plans for the benefit of members. Now therefore be it

RESOLVED, that the House of Delegates approve a Plan for Major Hospital Coverage submitted by representatives of The American Casualty Company of Reading, Pennsylvania.

The Reference Committee moved the adoption of this Resolution. The motion was seconded, put to a vote and **the Resolution was unanimously adopted.**

No. 9

Resolution on The National Foundation

By: RALPH O. RYCHENER, M.D.

WHEREAS, the Tennessee State Medical Association is aware of the valuable contributions of the Research, Professional Education and certain aspects of the Patient Care programs of the National Foundation in the past, and

WHEREAS, the Tennessee State Medical

Association is ever anxious to extend cooperation and assistance to any agency or group interested in the health of citizens of this state, and

WHEREAS, the philosophical proposition that the National Foundation can or should assume responsibilities for patient care which have been traditionally assumed by the head of the household is unacceptable to this Association, and

WHEREAS, local chapters of the National Foundation should not be autonomous in matters of patient aid, and

WHEREAS, each community in which definitive treatment is rendered to Foundation aided patients shall have an authoritative Medical Advisory Committee, now therefore be it

RESOLVED, that positive and affirmative action be taken by the Tennessee State Medical Association's house of delegates expressing to the local, state, and national chapters of the National Foundation the disapproval of the patient care policies of the National Foundation as they now exist, and expressing a desire and willingness on the part of this Association to assist in the formulation of Patient Care policies which would lead to the development of a program of aid which would be meaningful to the patient and would foster improved relations between the National Foundation and the practicing physicians of the State of Tennessee.

The Reference Committee recommended adoption of this Resolution. The motion was seconded, put to a vote and **the Resolution was unanimously adopted.**

No. 10

Resolution on Adoption of Policies Pertaining to  
the National Foundation by County  
Medical Societies

By: RALPH O. RYCHENER, M.D.

WHEREAS, the Tennessee State Medical Association has expressed its disapproval of the patient care policies of the National Foundation as they exist, and

WHEREAS, the Tennessee State Medical Association is anxious to assist in the formulation of patient care policies for the National Foundation and for other similar agencies in the health field which render direct aid to patients in the state of Tennes-

see, now therefore be it

RESOLVED, that the Executive Secretary of the Tennessee State Medical Association be instructed to transmit the following statement of policies to all of the county medical societies in Tennessee, and it is recommended that implementation and activation of these policies be adopted by all county medical societies. They are:

(1) That a Medical Advisory Committee to the National Foundation be appointed by the President of each local medical society.

(2) That this Committee be required to furnish a detailed report to its local society at least once annually concerning the actions of the Committee.

(3) That the Committee be required to conform with such other policies as stated by the county medical society.

(4) That the following basic principles shall govern the relationship between patients concerned, members of the county medical society and the National Foundation.

(A) In order that this Committee can discharge its functions as a liaison between the National Foundation and the county medical society, the Chairman of the Committee automatically shall be a member of the Executive Committee of the local chapter of the National Foundation if such exists in the county.

(B) National Foundation funds for patient care or for professional education shall not be expended without approval of the Medical Advisory Committee.

(C) Determination of the extent and degree of eligibility for patient care shall be made by the Medical Advisory Committee after receiving recommendations from the attending doctor and the Hospital Social Service Department in the case of hospitalized patients. In the case of out patients, the attending doctor and the local Health Department, the Crippled Children's Service or the County Judge, shall make such recommendations. Indigent patients will be referred to Crippled Children's Service as in the past. Private patients will receive private attention as in the past. In economically borderline cases, the Medical Advisory Committee shall determine to what extent the local chapter may assist in the

payment for para-medical services, but the fee for professional services will be arranged between the doctor and the responsible patient, and shall not be paid by the local Chapter.

(D) The National Foundation shall make no payment for professional services rendered to indigent patients regardless of diagnosis.

(E) Fees for professional services tendered to nonindigent patients will be arranged privately between the patient and the doctor as in all other diseases. The National Foundation should take the necessary steps to clarify this point, both with its Chapter members, the general public and the patients concerned.

(F) Each Chapter which extends aid to patients receiving professional medical or surgical service in a specific medical community must be continuously apprised of, and must strictly conform to the policies of the Medical Advisory Committee of the county medical society in the community in which the treatment is rendered.

(G) Doctors who agree to serve on such Medical Advisory Committees should be aware of the responsibilities attendant upon such positions, and offer constructive leadership in this respect.

The Reference Committee recommended that Section D of this Resolution be amended to read as follows: "The National Foundation should make no payment for professional service rendered to indigent patients, regardless of diagnosis, as has been the previous custom."

The Reference Committee further recommended that Section D and E follow Section B.

The Reference Committee also recommended that Resolutions No. 9 and 10 be submitted by the TSMA delegation to the American Medical Association at the meeting of the House of Delegates of the AMA in June 1959.

The Reference Committee moved the adoption of Resolution No. 10 as amended by the Reference Committee. The motion was seconded, put to a vote, and **Resolution No. 10 as amended was unanimously adopted.**

## No. 11

## Resolution on Orientation of TSMA Members

By: ADDISON B. SCOVILLE, M.D.

WHEREAS, the average physician in Tennessee is unaware of the many benefits, obligations and responsibilities of organized medicine at the local, state and national levels, and

WHEREAS, the Public Service Committee feels that the most effective means of providing such orientation of Tennessee State Medical Association members is within the local medical society, and

WHEREAS, the Public Service Committee is able to provide assistance and information which may be helpful to the local medical societies, now therefore be it

RESOLVED, that during the next year all county medical societies be urged to hold at least one orientation program requiring all new members and urging all present members to attend such a program.

The Reference Committee recommended adoption of this Resolution. The motion was seconded, put to a vote, and **the Resolution was unanimously adopted.**

## No. 12

## Social Hour at President's Night Banquet

By: RALPH O. RYCHENER, M.D.

WHEREAS, it is customary for a social hour to precede the annual banquet of the Tennessee State Medical Association, therefore be it

RESOLVED, that tickets for the banquet include admission to the social hour to be effective in 1960.

The Reference Committee recommended that the Resolution be amended to the extent "that it not be mandatory that the host society follow this resolution, but that it be left to the choice of the host society as to the entertainment."

The Resolution was discussed by members of the House. Dr. Chas. Trabue of Nashville moved that the Resolution be tabled. It was stated that the host society would then be at liberty to handle entertainment in whatever manner it wished. The motion was seconded, put to a vote, and **the motion to table Resolution No. 12 was adopted** with three "No" votes recorded.

## No. 13

## Resolution on a Bill to Provide Privilege Communication for Physicians

By: WM. A. GARROTT, M.D.

WHEREAS, no provision now exists in the Tennessee Code which protects the physician-patient relationship with respect to confidential information which the physician may obtain from the patient in diagnosing and treating the patient, now therefore be it

RESOLVED, that the Legislative and Public Policy Committee draft a bill to amend the code to provide such protection and be it further

RESOLVED, that the Legislative and Public Policy Committee present such a bill to the House of Delegates for approval at the 1960 annual meeting.

The Reference Committee recommended adoption of the Resolution. The motion was seconded.

Dr. R. H. Hutcheson spoke to the House presenting information that he had gained from members of the General Assembly and others in the legal profession. He recommended that before such a bill is presented to the Legislature, as called for in the Resolution, that the bill should be referred to the proper committee of the Tennessee Medical Association and that the committee should meet with the proper committee of the legal profession and iron out the difficulties involved. He pointed out that the Bar Association would perhaps fight a bill as called for in the Resolution. Dr. Hutcheson moved that this amendment to the Resolution be adopted. The motion to amend was seconded, put to a vote and **the Amendment to Resolution No. 13 was adopted.**

Resolution No. 13 as amended was put to a vote and **the Resolution as amended was adopted.**

## No. 14

## Resolution on Amendment of the Medical Practice Act

By: WM. A. GARROTT, M.D.

WHEREAS, the practice of medicine is threatened by numerous para-medical groups whose members are licensed to perform certain services resembling certain services that have traditionally been per-



formed by physicians, and

WHEREAS, such para-medical groups are not qualified by training to perform such acts with complete protection of the interests and needs of the patient, and

WHEREAS, such para-medical groups are becoming more aggressive in their efforts to separate and legalize their special type of services to the extent that doctors would actually be prohibited by law from performing such services traditionally rendered by doctors of medicine, and

WHEREAS, such groups are employing such methods as undermine public confidence in the physician in order to gain their ends, now therefore be it

RESOLVED, that the House of Delegates support an intensive program of education to acquaint every member of the Association with the purpose and meaning of the above mentioned bill which will be presented to the 1961 Tennessee General Assembly to the end that members of the Association can thoroughly inform members of the 1961 Tennessee General Assembly of the true purpose of the bill.

The Reference Committee moved adoption of this Resolution. The motion was seconded.

Dr. C. B. Roberts discussed the Resolution and moved that the Resolution be amended to include the same action called for in the amendment on Resolution No. 13, in that the Legislative Committee of TSMA should study this Bill in cooperation with the legal profession for proper clarification before submission to the legislature. The amendment was seconded, put to a vote and **unanimously adopted.**

The Reference Committee recommended adoption of Resolution No. 14 as amended. The motion was seconded, put to a vote, and **the Resolution as amended was unanimously adopted.**

#### No. 15

##### Resolution on Development of Mental Health Clinics Without Informed Medical Supervision and Control

By: WM. A. GARROTT, M.D.

WHEREAS, mental health clinics are being developed in Tennessee without the knowledge of the local medical profession and without adequate supervision by physicians trained to organize such clinics, and

WHEREAS, such mental health clinics should have a director who is a competently trained physician able to assume complete responsibility for the diagnosis and treatment of patients suffering from mental or emotional illness, now therefore be it

RESOLVED, that every member of the Tennessee State Medical Association be alert to any activity directed toward the formation of a mental health clinic in his community and be it further

RESOLVED, that any such clinic should be established under the direction of a physician recognized by the medical profession as having adequate training to supervise the activities of the clinic in a manner consistent with proper patient care, and be it further

RESOLVED, that it is the responsibility of local medical societies to take all possible steps to assure that the provisions of this resolution are carried out and be it further

RESOLVED, that county medical societies be informed that they can obtain consultation and cooperation from the Tennessee State Medical Association's Mental Health Committee and the Tennessee Department of Mental Health.

The Reference Committee recommended adoption of the Resolution. The motion was seconded.

Dr. C. B. Roberts discussed the Resolution and it was pointed out that the Amendment to Resolutions No. 13 and 14 did not apply to Resolution No. 15.

The motion was put to a vote, and **the Resolution was unanimously adopted.**

#### No. 16

##### Resolution on Administration of Voluntary Prepaid Medical Care Plans

By: CARL A. HARTUNG, M.D.

WHEREAS, the future survival of voluntary prepaid medical plans depends upon more effective mechanism for professional control and responsibility, and

WHEREAS, organized medicine desires to maintain the responsibility as related to the practice of medicine, and

WHEREAS, the socio-economic aspects of the practice of medicine have become extremely complex, and

WHEREAS, the proper and adequate responsibility in the practice of medicine is most urgent at this time, and

WHEREAS, unless the profession provides this responsible leadership it will fall to other less qualified agencies, and

WHEREAS, success of medical care plans depends upon the mutual cooperation of physicians and the consumer or consumer agencies, and

WHEREAS, we realize that adequate devices for cooperation have not been forged, and

WHEREAS, the present delegation of duties and responsibilities to various committees is so fractioned and limited as to hinder effective action of organized medicine. Now therefore be it

RESOLVED, that the House of Delegates of the Tennessee State Medical Association establish a special committee of nine members, three from each grand division of the State, to be known as "The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans" whose duties shall be as follows:

1. Consultation in matters pertaining to costs as they relate to the distribution of services provided by voluntary insurance plans.

2. To maintain a continuing appraisal of the quality of medical care as it relates to such costs.

3. To maintain continuing liaison with appropriate legislative bodies which may establish proper laws for effective enforcement of these goals which lie in the public interest.

4. To maintain continuing liaison with purveyors of prepaid medical insurance, inviting a free exchange of information and ideas.

5. To report findings to the Council where disciplinary action seems indicated.

6. To study and devise better means of providing preventive medical measures to the public.

7. To appoint subcommittees to implement special phases of the broad purposes of this committee.

The Reference Committee Chairman recommended that an additional section numbered "8" be added to read as follows: "8. The Board of Trustees shall authorize funds for secretarial and legal services where indicated so that this resolution may be fully implemented." The Reference Committee

moved that the Resolution with the added Section 8 be adopted. The motion was seconded, put to a vote, and **the Resolution as amended was adopted.**

#### No. 17

Resolution of Commendation to Dr. D. C. Seward for Service on Council

By: CARL C. GARDNER, JR., M.D.

WHEREAS, Dr. D. C. Seward has served as Councilor of the Sixth District of the Tennessee State Medical Association for 16 years and as chairman of the Council for 12 years, and

WHEREAS, during this entire period, he has given unstintingly of his time and effort, and

WHEREAS, he has been a major influence in upholding the ethics and high ideals of our State Association, now therefore be it

RESOLVED, that the House of Delegates of the TSMA take official cognizance of the great service which Dr. Seward has rendered to the Tennessee State Medical Association in this capacity and express to him its deep gratitude and appreciation.

The Reference Committee recommended adoption of this Resolution. The motion was seconded, put to a vote and **the Resolution was unanimously adopted.**

#### No. 18

Resolution on Introduction of Resolutions in Second Session of House

By: Reference Committee on Resolutions

WHEREAS, Resolutions introduced after the first day of the meeting of the House of Delegates make it extremely difficult for the Reference Committee to study such resolutions. Now therefore be it

RESOLVED, that this House of Delegates adopt the policy that no resolution be introduced after the close of the first session of the House unless such resolution is of extreme urgency.

The Speaker ruled that Resolution No. 18 was out of order, and did not require action.

The Reference Committee moved that the report of the Reference Committee on Resolutions as amended be adopted as a whole. The motion was seconded, put to a vote and **the Report of the Reference Committee on Resolutions was adopted as a whole.**

The Speaker announced that the House

would consider the Report of the Reference Committee on Reports of Officers.

**Report of Reference Committee on  
Reports of Officers**

JOHN E. KESTERSON, M.D., Chairman

Dr. Kesterson read the following report of the Reference Committee on Reports of Officers.

**Report of President**

The Committee has reviewed the report of the President, Dr. James C. Gardner, of Nashville, and wishes to commend him for the outstanding work he has done during the past year. He has given unselfishly of his time, his talent, his experience and his means.

We acclaim his diligence in visiting numerous county societies as well as attending the Annual Conference of State Presidents at the 1958 meeting of the American Medical Association in San Francisco, the Department of Defense Conference on Medicare, and the annual meetings of the Tennessee State Dental Association and the Tennessee Bar Association.

We note with satisfaction the inception of the Revised Tennessee Plan, the beginning of the work of the Committee on Aging, and the publication of physicians' contributions to their communities in the State of Tennessee. We endorse heartily his suggestion that every district Councilor should have one definitely scheduled meeting each year to which key officers of the Tennessee State Medical Association should be invited in order to discuss our affairs, policies and problems. His recommendations are interpreted to include the active participation of the district Councilor at all scheduled meetings in the conscientious performance of his duties. We endorse his entreaty that we as physicians use our talents and influence to assure better government and programs for public improvements.

Dr. Kesterson moved the adoption of the report. The motion was seconded, put to a vote, and **the report of the President was unanimously adopted.**

**Report of Secretary-Editor**

The Committee has reviewed the report of the Secretary-Editor, Dr. R. H. Kampmeier. We commend him for the excellence

of the JOURNAL and note its improvement in content, both business and scientific. We acknowledge the untiring assistance of Dr. Albert Weinstein and Dr. Addison B. Scoville, Jr., as assistant editors.

The Reference Committee moved the adoption of the report. The motion was seconded, put to a vote, and **the Report of the Secretary-Editor was unanimously adopted.**

**Report of Chairman of Board of  
Trustees and Treasurer**

The Committee has reviewed the report of Dr. William O. Vaughan, Chairman of the Board of Trustees and Treasurer. We strongly endorse his recommendation that the long-range planning committee be appointed so that practices and policies of the Association can be thoughtfully analyzed and executed more proficiently. After analysis of the Treasurer's report, we note with satisfaction that maximum results are being obtained from the monies spent in conducting the Association's business.

The Reference Committee moved the adoption of the Report of the Chairman of Board of Trustees and Treasurer. The motion was seconded, put to a vote and **the Report of the Chairman of the Board of Trustees and Treasurer was adopted.**

**Report of Chairman of the Council**

The Committee reviewed the report of Dr. D. C. Seward for the past year, and recommended adoption of the first and last paragraphs of this report. The Committee respectfully requested the deletion of the intervening material in this report, since it presents hearsay evidence and the personal opinion of the chairman. Its publication in the official minutes or in the JOURNAL would not necessarily reflect the opinion of the members of the Association and the House of Delegates.

The Committee realizes that many functions of the Council are confidential, but the committee is of the opinion that the House of Delegates is entitled to know whether or not the Council has complied with the duties as outlined in Chapter VII of the Tennessee State Medical Association By-Laws.

The Reference Committee moved the acceptance of the Report provided the sections between the first and last paragraphs were deleted. The motion was seconded, put to a



vote and **the Report of the Council was adopted deleting the material between the first and last paragraphs of the report.**

#### **Report of Executive Secretary**

The Committee has reviewed the comprehensive report of the Executive Secretary, Mr. J. E. Ballentine, and wishes to express to him the grateful thanks of the Association for the efficient performance of the many and varied duties of his office. The loyalty of his associates and staff is also deeply appreciated.

The Reference Committee moved the adoption of the report, the motion was duly seconded, put to a vote and **the Report of the Executive Secretary was adopted.**

The Chairman moved that the report of the Reference Committee on Reports of Officers be accepted as a whole. The motion was duly seconded, put to a vote and **the Report of the Reference Committee on Reports of Officers was adopted as a whole.**

The Speaker called for a five-minute recess. Following recess, the House reconvened with Dr. J. Malcolm Aste, Vice-Speaker presiding.

He announced that the next order of business would be to hear the Report of the Reference Committee on Reports of Standing Committees.

#### **Report of Reference Committee on Reports of Standing Committees**

S. FRED STRAIN, M.D., Chairman

Dr. Strain recommended the adoption of the Report of the Committee on Scientific Work with the recommendation that three additional members at large be added to compose the Committee as set forth in the report. The motion was seconded, put to a vote and **the report of the Committee on Scientific Work was adopted.**

The Reference Committee moved the adoption of the Report of the Committee on Hospitals. The motion was seconded, put to a vote and **the report of the Committee on Hospitals was adopted.**

Dr. Strain recommended that the Report of the Legislative and Public Policy Committee and the Report on National Legislation be adopted and it was so moved. The motion was seconded, put to a vote, and the report of the Legislative and Public Policy Committee and **the Report on National Legislation was adopted.**

The Reference Committee Chairman moved the adoption of the reports of the Liaison Committee to the Public Health Department; the Insurance Committee; and the Memoirs Committee. The motion to adopt these reports was seconded, put to a vote, and these committee reports **were adopted.**

The Reference Committee recommended adoption of the Report of the Committee on Postgraduate Education and suggested that the entire program of postgraduate education be appraised, since there was some question as to its value in the present form. The motion was seconded, put to a vote and the report of the Committee on Postgraduate Education **was adopted.**

The Reference Committee moved the adoption of the reports of the Cancer Committee; Grievance Committee; Liaison Committee to Department of Public Welfare; Prepaid Health Insurance Committee; Public Service Committee and the Rural Health Committee.

The motion to adopt was seconded, put to a vote, and these reports **were unanimously adopted.**

During the presentation of the report of the Liaison Committee to the Department of Public Welfare, there was considerable discussion of the report for purposes of clarifying questions brought before the House. Dr. Johnson, Speaker of the House, resumed the Chair during this discussion.

The Reference Committee reported that the Committee on Physical Therapy did not make a report.

The Chairman moved that the Report of the Reference Committee on Reports of Standing Committees be adopted as a whole. The motion was seconded, put to a vote, and the Report of the Reference Committee as a whole on **the Reports of Standing Committees was adopted.**

The Speaker called for the Report of the Reference Committee on Reports of Special Committees.

#### **Report of the Reference Committee on Reports of Special Committees**

WILLIAM A. GARROTT, M.D., Chairman

Dr. Garrott reported as follows:

Committee on General Practice—Recommended adoption.

Committee on Civil Defense—Recom-

mended adoption of paragraphs 2, 3 and 4. It was recommended that subjects referred to the Legislative Committee in paragraph 5 be retained by the Civil Defense Committee who should come up with recommendations to the Legislative Committee. The report stated that the Reference Committee was unacquainted with the contents and reference in paragraph 6. The Committee recommended adoption of paragraphs 7, 8 and 9 of the report. With these modifications, the Reference Committee recommended the report for adoption.

Industrial Health & Workmen's Compensation—Recommended adoption.

Liaison to United Mine Workers of America—Recommended adoption, provided there is no obstruction to free choice of physician.

Advisory Committee to Woman's Auxiliary—Recommended adoption.

Governmental Medical Services Committee—Recommended adoption.

Committee on Blood Banks — Recommended adoption and suggested that the Committee remain alert, active and report to the House of Delegates.

Committee on Tuberculosis—Recommended adoption.

Committee on Mental Health—Recommended adoption and offered a strong suggestion that every member of the Association become thoroughly informed on this matter.

Committee on Health Project Contest—Recommended adoption with special commendation to the Woman's Auxiliary for their efforts on the project.

Labor Liaison Committee—No report.

Committee on Legal Relations and Inter-professional Code—Recommended adoption.

Liaison Committee to Tennessee State Dental Association—No report.

Study Committee on Legal Definition of Medicine—Recommended adoption and urged that the doctors of the State have this thoroughly explained to them before the next legislature meets so that they may be aware of its vital importance.

Study Committee for Expansion of General Practice of UMWFA Welfare and Retirement Fund—No report.

Tennessee Committee to American Medi-

cal Education Foundation — Recommended adoption.

Sight Conservation Committee — No report.

### Special Reports

Report of Woman's Auxiliary to TSMA—Recommended for adoption and the Committee expressed appreciation for the excellent report and called attention to the statement of the Auxiliary president, Mrs. Gary, wherein the women cannot organize in any county without the consent and approval of the doctors. "Those of us who have had the benefit of an active Woman's Auxiliary in our county are well aware of the improvement in professional relationships and public esteem for the profession that is evident since the Woman's Auxiliary became active and we urge those areas that have not had such activity to consider sponsoring them."

Report of AMA Delegates—Recommended adoption.

Report of Tennessee Medical Foundation—Recommended adoption and pointed out that doctors of the State could profitably enlarge upon the support of the Tennessee Medical Foundation.

The Chairman moved that the reports of special committees as recommended by the Reference Committee be adopted. The motion was seconded, put to a vote, and reports of special committees **were adopted.**

The Chairman then moved that the Report of the Reference Committee on Reports of Special Committees be adopted as a whole. The motion was seconded, put to a vote, and the **report of the Reference Committee on Reports of Special Committees was adopted as a whole.**

The Speaker called for any supplemental reports of officers. There being none, he called for any supplemental reports of committee chairmen. There were none.

The Speaker pointed out the long and hard work performed by the Reference Committees. He stated that they had done an extraordinary job.

The Speaker announced that he would recommend for the 1960 meeting, that the Vice-Speaker assign definite times for those who wished to appear and discuss matters before the Reference Committees, especially the Reference Committee on Resolutions.

*In conclusion, the Speaker pointed out*

*that a great many things are happening in the Tennessee State Medical Association. He stated that there is a sort of yeast bubbling in it, not only in terms of ways of providing for the costs of medical care but the actual structure of the organization itself. He stated "I think it is pertinent that somebody go on record that within the next eighteen or twenty-four months (and we had better begin to think about it now) we are going to have to consider a variety of ways of financing the type of thing that I think this progressive state organization has embarked upon. This is just a matter for the record."*

The Speaker called for any other old business. There being none, he called for any new business to be presented. There being none, he announced that the next order of business would be the selection of a meeting place for 1960.

#### Meeting for 1960

Dr. Rollin A. Daniel, Jr., Nashville, arose in behalf of the Davidson County Delegation

to extend a hearty invitation to hold the 1960 meeting in Nashville. The invitation was accepted.

The Speaker asked if anyone wished to issue an invitation for 1961, since it was the year that Chattanooga normally would host the TSMA meeting.

Dr. Hiram Laws of Chattanooga, invited the Association to meet in Chattanooga in 1961. The invitation to meet in Chattanooga in 1961 was accepted.

The dates of the 1960 meeting will be April 10-13.

The Speaker called for other announcements and after several were made, he stated that the 1959 session of the House had been an interesting and busy one and he expressed appreciation to all members of the House for their cooperation.

There being no further business, the House of Delegates of the Tennessee State Medical Association adjourned at 11:55 A.M., sine die.

J. E. BALLENTINE  
Executive Director

## Minutes of the Annual Meeting of the Board of Trustees of the Tennessee State Medical Association— Peabody Hotel, Memphis, Tennessee April 15, 1959-9:00 A.M.

The Board of Trustees of the Tennessee State Medical Association convened at 9:00 A.M. on April 15, 1959, in its annual meeting conducted in Room 214 of the Peabody Hotel in Memphis, Tennessee.

#### *Members of the Board present were:*

Dr. W. O. Vaughan, Chairman, Nashville  
Dr. James C. Gardner, Nashville  
Dr. John D. Hughes, Memphis  
Dr. Joseph W. Johnson, Jr., Chattanooga  
Dr. Henry T. Kirby-Smith, Sewanee  
Dr. Harmon L. Monroe, Erwin  
Dr. Ralph O. Rychener, Memphis  
Dr. Daniel R. Thomas, Knoxville  
Dr. Julian K. Welch, Jr., Brownsville  
Dr. Wm. J. Sheridan, Chattanooga  
Dr. R. H. Kampmeier, Nashville

#### *Others present were:*

Mr. J. E. Ballentine, Executive Director, TSMA

Mr. Jack Drake, Public Service Director, TSMA

I. The meeting was called to order by the Chairman, Dr. W. O. Vaughan. He welcomed Dr. John D. Hughes, a new member of the Board. The first order of business was to organize. Dr. Vaughan recommended that the Board elect a Vice-Chairman. Upon motion made, duly seconded and adopted, Dr. Gardner was elected Vice-Chairman.

A motion was made by Dr. Johnson, seconded by Dr. Sheridan and adopted, that Drs. W. O. Vaughan, James C. Gardner, R. H. Kampmeier, Harmon L. Monroe and Julian K. Welch, Jr. compose the Executive Committee of the Board of Trustees.

The Chairman requested that regular quarterly meetings be conducted in order to expedite handling of the increasing business of the Trustees. It was recommended that



quarterly Trustee meetings begin at 9:30 A.M. in Nashville, on the second Sunday in each quarter, the dates being July 12th and October 11th of 1959, and January 10th of 1960. The annual meeting of the Board will occur upon the final day of the annual meeting of the Tennessee State Medical Association.

In addition, it was recommended that the Board of Trustees conduct a meeting on Monday during the annual meeting, for the purpose of making committee appointments.

## II. OLD BUSINESS:

(A) Dr. Harmon L. Monroe, chairman of the study committee, reported on the formation of a General Health Committee to incorporate work of some of the present committees. The study was the outcome of a resolution presented at the 1958 meeting of the House of Delegates. It was reported that one previous session had been held and the committee was directed to make a final report to the annual meeting of the Board of Trustees.

The outgrowth of the committee's discussions was that a general liaison committee be appointed to deal with the many organizations that requested matters for discussion with the Tennessee State Medical Association. It was recommended that this matter be taken up during the appointment of other committees.

(B) Expansion of the headquarters building was discussed and the Chairman read a memorandum directed to members of the original Building Committee in which they were requested to study the matter and report to the annual meeting of the Board. No report had been received.

A motion was made by Dr. Kirby-Smith and seconded by Dr. Rychener, that the Executive Committee of the Board of Trustees be authorized to proceed with the necessary addition to the headquarters office building by the most feasible means and report their actions to the Board. This motion was adopted. Further discussion on the building expansion was deferred for discussion under new business.

## III. NEW BUSINESS:

(1) The Trustees discussed at length Resolution No. 16, adopted by the House of Delegates. Dr. Joseph Johnson reported on what is happening in insurance, pointing

out that TSMA should have a review committee to act as an auditing body.

A discussion ensued as to what can be done by the committee established in the Resolution and to be known as "The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans." Dr. Johnson reported upon the regional meetings that will be held over the country by a Congressional Committee, pointing out that organized medicine must be ready to answer questions that will be posed by the Congressional Committee. Hearings are scheduled to be conducted in all states during the coming year.

Some discussion ensued as to how this committee's activities should be financed and whether or not it could be done through the insurance industry. For the present, the Board approved that necessary funds be granted to the committee from the amount budgeted under TSMA committee expenses. The Board named the following as members of the committee: Dr. William R. Bishop of Chattanooga; Dr. R. B. Wood of Knoxville; Dr. J. J. Range, Johnson City; Dr. Garth E. Fort, Nashville; Dr. Carl N. Gessler, Donelson; Dr. George L. Smith, Winchester; Dr. J. Palmer Moss, Memphis; Dr. Baker Hubbard, Jackson; Dr. H. P. Clemmer, Milan.

Dr. R. B. Wood was designated as the division chairman for East Tennessee, Dr. Carl Gessler, division chairman for Middle Tennessee, and Dr. H. P. Clemmer, division chairman from West Tennessee.

The Board directed that the general chairman be selected by the committee. Dr. Kampmeier recommended that this committee be publicized in the May issue of the JOURNAL in the yellow pages and that the Editor prepare a special item in the May issue of the JOURNAL on this subject.

The Board approved a request by Mr. Drake for a news release on the purposes of the committee.

(2) A recommendation of the Reference Committee concerning the Committee on Postgraduate Education was presented. The recommendation was that the Symposium Postgraduate Education Committee re-study the present program now being conducted.

Motion was made by Dr. Kirby-Smith, seconded by Dr. Johnson, and adopted that the Reference Committee's recommendation

be referred for further study to the Symposium Committee on Postgraduate Education.

(3) As set forth in the report by the Committee on Legal Relations and Inter-professional Code, the House of Delegates approved a recommendation contained in the report to have copies of the Inter-professional Code mailed to all TSMA members.

The Board directed that the Inter-professional Code be reproduced and sufficient quantities forwarded to secretaries of all county medical societies for distribution to the membership of the respective county societies.

(4) Members of the Board were acquainted with the final paragraph of Committee Report No. 34, the report of the AMA delegates. This report pointed out that a committee should be appointed to work with General Wegeland, Commanding Officer of the Dependent's Medical Care program. The Board was apprised that the Medicare Committee was already carrying out these functions. The Board directed that the Medicare Committee continue to function as the principal liaison committee from TSMA with the Department of Defense on Medicare problems.

(5) Committee Appointments:

Since the Board of Trustees had met on Monday, April 13, for appointment of standing and special committees, it proceeded to complete the appointment of committees that were not named on Monday. The Committee on Scientific Work is required to contain ten members with the secretary-editor acting as chairman.

It was recommended that the secretaries of the specialty societies that would furnish a guest speaker for the 1960 meeting compose six members of the committee. It was recommended by Dr. Kampmeier that the large specialty groups have continuing representation on the committee, these being the General Practice group, the Surgeons and the Society of Obstetrics and Gynecology. Three members at large were named, they being Dr. E. White Patton of Chattanooga, Dr. Henry B. Gotten of Memphis and Dr. John H. Burkhart of Knoxville.

A motion was made by Dr. Johnson and seconded by Dr. Rychener, that General Practice, College of Surgeons and Ob-Gyn

be the top three priority groups whose secretary shall be a member of the Committee on Scientific Work, and that the Chairman of the Committee, Dr. Kampmeier, be empowered to select the other three representatives. The motion was adopted.

The Standing Committee on Tennessee Medical Foundation was appointed, consisting of Dr. Harrison J. Shull (1960) of Nashville as chairman. Other members of the committee and their terms are as follows: Dr. Ernest G. Kelly, 1960; Dr. B. M. Overholt, 1960; Dr. Julian K. Welch, Jr., 1961; Dr. D. W. Smith, 1961; Dr. Ralph H. Monger, 1961; Dr. J. Paul Baird, 1962; Dr. Robert N. Buchanan, Jr., 1962; and Dr. John Kester-son, 1962.

The motion was made by Dr. Rychener, seconded by Dr. Johnson, that Dr. Charles C. Trabue of Nashville be named chairman of the Legislative and Public Policy Committee, and that Dr. Addison B. Scoville be added as a member of the committee on a year to year basis. The motion was adopted.

(6) Dr. Kampmeier discussed the expansion of the Editorial Board, but he recommended that it should not be expanded this year.

(7) The financial audit for 1958 as made by Grannis & Associates, Certified Public Accountants, was presented. The audit set forth the financial condition of the Tennessee State Medical Association. After study, the motion was made by Dr. Garner, seconded by Dr. Johnson, and adopted that the financial audit statement be accepted, with commendation to the Executive Director.

The first quarter financial statement covering the period January 1, through March 31, 1959 was presented. The statement set forth the financial condition of the Association during the first three months of 1959. Following study, the Trustees accepted and approved the First Quarter Financial Statement.

(8) Due to the large amount of business acted upon by the House of Delegates, and increasing activities of the Association, a request was made for additional staff personnel (Executive Assistant) and an additional office secretary, if needed. The motion was made by Dr. Gardner, seconded by Dr. Johnson, to empower the Executive Director to employ the additional personnel as



needed, to efficiently conduct the business of the Association. The motion was adopted.

In discussing this matter, the Board considered the expenditures for additional personnel and equipment. The projected estimate of the amount necessary was outlined by the Chairman of the Board. A long-range estimated figure to include additional personnel, equipment and supplies, travel expenses, and the eventual enlargement of the headquarters building was reported by Dr. Vaughan. The long-range figure was estimated at \$30,000 for the next two years.

(9) Dr. Vaughan outlined the proposed suggestion wherein the Nashville Academy of Medicine would be asked to increase their rental to compensate for the necessity of expanding the headquarters building. Motion was made by Dr. Gardner, seconded by Dr. Monroe, that the Executive Committee of the Board be empowered to negotiate with officials of the Nashville Academy of Medicine, to work out a suitable arrangement for increased rental for space occupied by the Nashville Academy. Included in the motion was an amount up to and not to exceed \$250 per month. This motion was adopted.

(10) The Executive Director discussed the re-organization and establishment of policy on legislative activities on a grass-roots level. This would necessitate the Public Service Director working in the field with prospective candidates for the Legislature as well as those actually elected to come to the Tennessee General Assembly from counties over the State. Further, it would be necessary to set up Legislative Committees and work closely with legislators and county medical societies in order to educate doctors and legislators over the state as to what the legislative program of TSMA contains. The motion was made by Dr. Kirby-Smith, seconded by Dr. Welch, and adopted, that the headquarters office implement the program and co-ordinate it with the Legislative and Public Policy Committee.

(11) Dr. Gardner presented a letter from an AMA delegate from Georgia relative to southeastern states organizing a Southeastern States Conference of delegates in the AMA. This question was not looked upon favorably by members of the Board of Trustees.

Dr. Gardner also presented another matter contained in the communication, that being a request for funds for the purpose of entertaining AMA delegates during the 1960 meeting of the AMA that would convene in Miami Beach, Florida. The letter recommended that all southeastern states get together and contribute toward the entertainment of the House of Delegates, since the AMA meeting has never been held in the South.

Members of the Board discussed the matter and stated that it was not their opinion that Association funds could be expended for such a purpose. A motion to reject the request was made by Dr. Hughes, seconded by Dr. Johnson, and adopted.

(12) Dr. Vaughan recommended that a committee be appointed to review personnel, salary policies, vacation, insurance, sick leave and other personnel policies related to employees of TSMA. A committee was appointed composed of Dr. Joseph W. Johnson, Jr., Chairman, Dr. John D. Hughes and Dr. Julian K. Welch. The committee stated that these matters would be studied and a report made to the July 12 meeting of the Board of Trustees.

In addition, the Trustees clarified the matter discussed at the April 1958 meeting wherein salary ranges as proposed by the Executive Director were submitted for all headquarters staff personnel. The approved salary ranges were re-affirmed by the Board.

(13) The Trustees went into executive session and Mr. Ballentine and Mr. Drake were excused. The Board discussed the personnel of the headquarters office. The Board, in executive session, re-affirmed that the Executive Director has the authority to supervise personnel, salary matters, and other matters having to do with headquarters office personnel. The motion was made by Dr. Welch, seconded by Dr. Monroe and adopted that salary adjustments effective May 1, 1959, be made for the Executive Director and the Public Service Director.

(14) At the suggestion of the Chairman, it was requested that a long-range planning and research committee of the Board of Trustees be named to study programs and policies of the Tennessee State Medical Association. A motion was made by Dr. Welch,



Seconded by Dr. Johnson, and adopted, that the Research and Planning Committee be appointed by the Chairman of the Board.

Dr. Vaughan appointed Dr. John D. Hughes chairman; Dr. R. H. Kampmeier; Dr. H. L. Monroe and Dr. Joseph W. Johnson, Jr.

(15) In other new business, the Board, at the suggestion of Dr. Joseph W. Johnson, recommended that the Vice-Speaker of the House of Delegates make an assignment of times on a schedule basis, wherein persons desiring could appear before the Reference Committee on Resolutions. This assignment will be made by the Vice-Speaker and a schedule worked out for the 1960 meeting of the House of Delegates.

(16) At the request of Mr. Drake, the Board was asked to consider a request for conducting a survey on rheumatic fever. TSMA was asked by the Public Health Department to co-sponsor the survey with the Tennessee Heart Association.

A motion was made by Dr. Johnson, seconded by Dr. Kirby-Smith, and adopted, that the Board of Trustees recommend that

TSMA cooperate in the survey provided that the work can be co-ordinated with and performed by the Public Health Department and not co-sponsored with any other agency.

(17) Dr. Julian K. Welch presented some suggestions relative to the TSMA Nominating Committee. He recommended that consideration be given to changes next year in the method of nominations. He read the recommendations and discussed them. Since these involved amendments to the By-Laws, he gave his opinion on the procedures of the Nominating Committee. Included in his presentation was the suggestion that the Board of Trustees, at least 90 days prior to the annual meeting, elect a Nominating Committee to be composed of at least two members of the House of Delegates from each of the grand divisions of the State, no two of whom could be from the same component society.

There being no further business, the Board of Trustees adjourned at 1:30 P.M.

W. O. VAUGHAN, M.D.      J. E. BALLENTINE  
Chairman                      Executive Director

## Abstract of Minutes of Council Meetings Tennessee State Medical Association Hotel Peabody, Memphis, Tennessee April 12-14, 1959

Drs. Carroll Long, Ben Marshall, Laurence Grossman, Carl Gardner, Jr., W. E. Anderson and Duane Carr were present at all meetings, as was Dr. Seward, the retiring Chairman of the Council. Dr. Carroll Long was elected Council Chairman and Dr. Carl Gardner, Jr., Secretary.

Dr. Harmon Monroe met with the Council briefly for an interchange of ideas. He remarked briefly on his disillusionment at the recent meeting of the State Legislature concerning the status which doctors, as a group, seem to occupy in the minds of a large segment of the public and noted the great importance of the medical profession taking steps to alter the public's opinion. He brought out his desire to see State laws rewritten to protect the physician against the requirement of disclosing confidential infor-

mation from his patient in Court. He brought out the importance of improving the relations of the medical profession with the dental profession, with the clergy, and with the legal profession; and he suggested joint meetings with these various groups in order to discuss problems of mutual interest. Dr. Monroe also stated that he felt it would be a good idea for the Council in each district to sponsor a meeting, at least once annually, for the new members and as many old members as could attend to discuss problems related to medical ethics and intra-professional relationships and relationships with other professions.

Dr. Grossman commented that it was his feeling that this was not, strictly speaking, a function of the Council, but was something for which policy had to be set at the

State office level. He pointed out that public opinion polls had shown that patients in 90% of the cases, had a very high opinion of their own physicians and the major area where the medical profession was falling down was at the political and policy making level.

Certain problems of medical ethics were touched upon, including that of unnecessary hospitalization, especially when the patient has insurance, the problem of unnecessary return visits to the office for certain illnesses, the problem of unnecessary surgery, and the matter of certain doctors receiving unwarranted newspaper publicity. With regard to the matter of physicians owning stock in a pharmaceutical company, it was the feeling that there was nothing legally or ethically wrong in owning such stock unless the physician involved wrote prescriptions exclusively or almost exclusively for the products of that company.

Proposed changes to the By-Laws of the TSMA with regard to the Council were

adopted and read at the second meeting of the House of Delegates.

A number of other problems were also discussed at some length by the Council.

The procedure for hearings before the Council was also outlined as follows: First, there must be a written and signed complaint from the interested party to a member of the Council. Following this, a copy of the complaint is to be sent to the accused together with a statement of the date and place for a hearing before the Council. At this hearing before the Council, the chairman shall act as presiding officer; the Councilor of the district from which the complaint comes shall present the evidence; the accused may have an attorney; and a majority vote of the Councilors other than the one presenting the evidence shall govern the Council's recommendation to the House of Delegates.

Respectfully submitted,  
CARL C. GARDNER, JR., M.D.  
Secretary of the Council

## President's Page



HARMON L. MONROE

"They also serve, who only stand and wait."

These famous words of Milton, writing on his blindness, perhaps aptly describe the role of many of our nation's senior citizens—those among us who have reached and passed their middle sixties. Once useful, productive members of our society, they are now, for a number of reasons, assigned by the rest of our society an out-of-the-way niche in which to pass their lives as the world moves by and around them.

The problem which our aging population poses to organized medicine has been brought sharply into focus by proposals in Congress that the federal government take over the responsibility for their medical and hospital care. We, as physicians and as citizens, reject these proposals for many basic reasons.

But it is not enough that we oppose . . . we must propose alternatives. We, as physicians, as leaders in our professional and civic environments, must not only take the initiative in combatting bad legislation directed toward a growing segment of our population; we must offer leadership which will direct our communities toward the solutions of the problems which they must accept as community responsibilities. The care of one's father and mother was defined as an individual responsibility long before the era of the "New Deal," the "Fair Deal," and the "Free Deal."

It is with considerable pride in my profession that I review the steps that have been taken thus far in Tennessee to come to grips with the problems of the aging. That pride stems from the fact that organized medicine, the Tennessee State Medical Association, has taken the initiative and furnished the leadership to organize a statewide organization which can and should become the potent force in arriving at the solutions to the many problems of the aging.

I refer, of course, to the Tennessee Council on Aging. TSMA, even before the hue and cry of Forand-type legislation, recognized the aging problem as one of the greatest challenges organized medicine would be called upon to accept in the immediate future. Accordingly, the Public Service Committee appointed a Sub-Committee on Aging, which was directed to explore the problems and recommend a remedial action.

Suffice it to say, the committee became aware that the problems were of three overlapping and closely interlinked categories: health, economic, and social. Its recommendations were to the effect that those state-level agencies concerned with these aspects of the aging problem be approached to determine whether an organization could be formed as a planning and action group.

Within the past year, the Tennessee Council on Aging has come into being. Its first permanent chairman is Dr. Thomas F. Frist, Nashville, who is also chairman of the TSMA Sub-Committee on Aging.

The Council has taken two important steps. It has appointed committees which will (1) inventory all services and facilities for the aging which exist at the state level, and identify needs; (2) assign priorities and develop programs to obtain needed services and facilities with respect to the health, economic, and social needs.

It is interesting to note that Tennessee has taken a decisive step in the direction of positive action. Forty agencies have combined resources, knowledge, and endeavor to the end that a basic community problem may be met and solved.

The task has only begun. It will require, on the local level, working leadership. As your president, I am confident that organized medicine, working through county medical societies throughout Tennessee, will provide that leadership.

*H. L. Monroe, M.D.*



# THE JOURNAL

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JUNE, 1959

## EDITORIAL

### ACUTE RHEUMATIC FEVER IN THE ADULT

Although rheumatic fever may occur at any age, even in the elderly, it rarely begins before the age of three or after the age of twenty-five years, according to Goldberger.<sup>1</sup> He states that the first attack usually occurs between the ages of four and fifteen years. This consideration of rheumatic fever as a disease of childhood, overlooks the very important fact that adults are also susceptible. The diagnosis of acute rheumatic fever in the adult is more difficult for a number of reasons: First, because of similarities to other polyarthritides such as rheumatoid arthritis, systemic lupus, gout, and allied diseases; second, major manifestations such as chorea, erythema marginatum and carditis are less frequent in the adult patient with acute rheumatic fever; third, because in the patient with previous rheumatic heart disease, the mere presence of heart murmurs as well as of various nonspecific findings,

such as fever, increased erythrocyte sedimentation rate, or electrocardiographic abnormalities, may indicate complications of rheumatic heart disease rather than a recrudescence of activity; finally, since acute rheumatic fever is usually considered a childhood disease, the physician often neglects to consider it seriously in the differential diagnosis in the older age groups.

Pader and Elster<sup>2</sup> have studied a group of adults in whom the diagnosis of acute rheumatic fever has been made. The most consistent finding was fever with hyperpyrexia (over 104° F.) not uncommon; this was followed in frequency by polyarthritis. As in children, the arthritis was typically migratory, involved multiple joints, commonly involved joints in the lower extremities, and was sometimes associated with effusion in the joint spaces. It was difficult to determine the true incidence of carditis since some of the patients in this series had had previous episodes of rheumatic heart disease. However, less than 50% of this series had unequivocal carditis. The greater incidence of arthritis, as compared to carditis in the adult, has been noted by other writers.

Other manifestations of rheumatic fever in childhood, such as chorea, erythema marginatum and subcutaneous nodules, are very rare in the adult, and in Pader's group of 30 patients, none of these manifestations was found.

As can be seen, the clinical diagnosis of acute rheumatic fever in the adult presents real difficulties. Certainly the association of carditis with polyarthritis, strongly suggests this disease. In the absence of carditis, migratory polyarthritis, absence of chronic joint changes and an association with recent streptococcal infection, should suggest acute rheumatic fever as an excellent diagnostic possibility. Laboratory studies of these patients demonstrated that a leukocytosis was least valuable in establishing the diagnosis of acute rheumatic fever. Leukocytosis occurred in patients receiving adrenocortical hormones and usually persisted so long as the hormones were continued in spite of obvious clinical improvement in the arthritis carditis. The erythrocyte sedimentation rate is of established usefulness but has certain deficiencies. Its range of normal is poorly defined. It is affected by anemia, plasma

protein alterations and by congestive failure. It is relatively insensitive to changes in clinical condition. Pader, in his group, found determination of the C-reactive protein to be the most valuable guide to the treatment and management of acute rheumatic fever. It was found to be generally more sensitive than the erythrocyte sedimentation rate, to disappear from the serum more quickly in the early recovery period and usually reflected changes in the patient's condition more promptly. The antistreptolysin-O titer has great usefulness in the differentiation of rheumatic fever from other arthritides by demonstrating the presence of an antecedent streptococcal infection.

Pader and Elster have performed a notable service in presenting the clinical and laboratory findings in acute rheumatic fever in the adult. Accurate diagnosis of arthralgia is necessary for effective therapy. If the physician will consider the possibility of acute rheumatic fever in those numerous adults who present themselves with arthralgias, both medicine and the patient will benefit.

A. B. S.

#### References

1. Goldberger, Emanuel: Heart Disease, Its Diagnosis and Treatment, Lea & Febiger, Philadelphia, 1955.
2. Pader, Elmer, and Elster, Samuel K.: Studies of Acute Rheumatic Fever in the Adult, (1.) Clinical and Laboratory Manifestations in Thirty Patients, Am. J. Med. 26: 424, 1959.

## DEATHS

**Dr. Henry Hunton Hampton**, 76, Chattanooga, died on May 1 in a Chattanooga hospital.

**Dr. John W. Bradley**, 65, Lookout Mountain, died on May 1 in a local hospital.

**Dr. Joseph B. Parker, Sr.**, 89, Knoxville, died on May 13th at his home.

**Dr. Joel Erle French**, 81, Memphis, died on May 4th at his home.

**Dr. Joseph Charles Blankenship**, 69, Sparta, died on April 19th in the White County hospital.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Nashville Academy of Medicine and

#### Davidson County Medical Society

The Society met at Vanderbilt Hospital for a dinner meeting on the evening of May 12th. The subject presented was, "Neurological Problems" by Dr. Bertram Sprofskin. This was a "live" clinical presentation of interesting neurological disorders.

### Chattanooga-Hamilton County Medical Society

The Society met for its regular monthly meeting at the Chattanooga Golf and Country Club on the evening of May 5th. A buffet supper was given through the courtesy of the Chattanooga Surgical Company.

### Sumner County Medical Society

The Society met on Tuesday evening, May 12th for a program entitled "Hypertension and Cardiorenal Disease." The program was presented by a team of physicians consisting of Dr. Sam Riven, Dr. Fred Goldner, and Dr. Page Harris, all of Nashville. The meeting was held at the Cordell Hull Hotel in Gallatin.

### Greene County Medical Society

The regular meeting of the Society was held on May 5th at the Elks Club. Dr. Orland S. Olsen of Johnson City was the guest speaker. His subject was "Common Skin Diseases, Their Diagnosis and Treatment." Dr. Rae B. Gibson, TSMA delegate, gave a report on the activities of the House of Delegates session.

### Robertson County Medical Society

The Society met in the Jesse Jones Hospital on May 18th. The scientific program was presented by Dr. Fred Goldner of Nashville who discussed the artificial kidney. It was announced that Dr. D. G. Hays would become associated with the Society and practice medicine in Springfield, beginning June 1.

### Roane County Medical Society

The Society met for its regular monthly meeting on the evening of May 26th. The meeting was held in the Oak Ridge Hos-



pital. The program consisted of a paper on "Radiation Therapy of Lymphomas and Leukemias" by Dr. David S. Carroll, of the Department of Radiology, University of Tennessee School of Medicine, Memphis.

### **Memphis-Shelby County Medical Society**

The Society's regular monthly meeting was conducted on April 7th in the Institute of Pathology. Dr. Harvey R. Butcher of Washington University and Barnes Hospital, addressed the Society on the subject, "An Evaluation of Therapy For Extensive Pelvic Cancer." The program was sponsored jointly by the Memphis Chapter of the American Cancer Society and the Memphis and Shelby County Medical Society.

### **Anderson-Campbell County Medical Society**

The Society met on the evening of May 30th at the Russell Hotel. Dr. James Prose of Knoxville addressed the Society on the subject, "Acute Abdominal Pains." Dr. R. C. Pryse gave a report on the actions of the House of Delegates of TSMA.

### **Blount County Medical Society**

Dr. William Daniels, attending surgeon at Memorial Hospital in New York City, addressed the Blount County Medical Society at its recent meeting. A specialist in radical pelvic surgery, his topic was "Diagnosis and Treatment of Carcinoma of the Cervix."

### **Memphis Thoracic Society**

The Society held a dinner meeting on April 29th at West Tennessee Tuberculosis Hospital. Developments at recent national meetings were discussed by society members.

## **NATIONAL NEWS**

### **The Month in Washington (From the Washington Office, AMA)**

Congress won the first round in a battle over medical research funds, but the Eisenhower Administration is in a strategic position for the final outcome.

The House voted \$344,279,000 for the National Institutes of Health, \$50 million more than the Administration asked for in the

fiscal 1960 budget. The move to increase medical research funds also had strong support in the Senate.

However, the Health, Education and Welfare Department and the Budget Bureau will have the final say on how much of the appropriated funds are spent during the 1960 fiscal year when the Administration is striving to balance the budget.

Arthur S. Flemming, Secretary of Health, Education and Welfare, vigorously denied a charge of the Democratic-controlled House Appropriations Committee that the Administration had "gone so far as to set back the medical research program . . . in a desperate attempt to present, on paper, a balanced budget." Flemming said the committee was trying to give a "clearly misleading" impression. He also said it was hard to see how the Administration's \$294 million program could be regarded as a backward step.

Flemming pointed out that the Administration request was for the same amount voted by Congress last year. And, he added, some of last year's appropriation will not be spent this fiscal year.

At the same time, U. S. Surgeon General Leroy E. Burney testified before a Senate Appropriations Subcommittee that there was a shortage of trained personnel in all fields related to human health, including medical research.

Rep. Francis E. Dorn (R., N. Y.) again has introduced a bill that would provide for a special commission making a study of the supply of physicians. In a letter put in the Congressional Record, Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, envisaged an adequate supply on a long-range basis. He said: "Over the long haul, the increase in medical students is much greater proportionately than is the increase in the population. . . . The future, I believe, looks bright."

## **MEDICAL NEWS IN TENNESSEE**

### **TENNESSEE GIRL HONORED AT SCIENCE FAIR**

Winner of one of the two top American Medical Association awards at the National Science Fair in Hartford, Conn., May 6-9, was a Tennessee girl, Miss Edith Katherine





**Miss Kay Schuele**

(Kay) Schuele, 15, a sophomore at Treadwell High School in Memphis.

Her award, which included a trip to the AMA's Annual Meeting in Atlantic City, was presented for her exhibit on "Algae, Food of the Future," by Dr. Stanley P. Reimann, Philadelphia, chairman of the AMA Council on Scientific Assembly, who headed the special AMA judging group at the Fair. He made the award at a banquet at which the AMA was host and which honored the 1,000 students, counselors, and teachers attending the annual competition. Dr. Louis M. Orr, AMA president-elect, was the featured speaker.

Kay's exhibit, which tested the growth patterns of various species of algae and developed them into nutritious foods, was chosen from a field of 320 finalists from 48 states, the District of Columbia, Puerto Rico, Canada, Germany, and Japan. The National Science Fair is the annual climax of local and regional fairs, many of which are sponsored or assisted by state and county medical societies and their Auxiliaries in order to attract talented high school students into the study of medicine.

### **Middle Tennessee Medical Association**

The Association met on May 21st at the Bedford County General Hospital in Shelby-

ville, Tennessee for its 129th semi-annual meeting. Physicians from throughout the Middle Tennessee area were present. The program presented was as follows: (1) "The Parotid Duct," by Dr. Beverly Douglas, Nashville—Discussed by Dr. Kirkland W. Todd, Jr., Nashville; (2) "Polycythemia," by Dr. Robert M. Roy, Nashville—Discussed by Dr. William B. Wadlington, Donelson; (3) "Recent Actions of the Tennessee State Medical Association—The Tennessee Plan," by Mr. J. E. Ballentine, Executive Director of TSMA; (4) Business Meeting and Presidential Address by Dr. Ben H. Marshall of Fayetteville, the retiring president; (5) "Your Hard of Hearing Patient," by Dr. W. G. Kennon, Nashville—Discussed by Dr. Clyde Alley, Nashville; (6) "Selection of Therapy for Peripheral Arterial Disease," by Dr. W. Andrew Dale, Nashville—Discussed by Dr. Crawford Adams, Nashville; (7) Current Uses of the Artificial Kidney," by Dr. Fred Goldner, Nashville—Discussed by Dr. John M. Tudor, Nashville.

Officers elected for the coming year were: Dr. Carl C. Gardner, Columbia, President; Dr. John Derryberry, Shelbyville, President-Elect; and Dr. Greer Ricketson, Nashville, Secretary-Treasurer.

### **Cancer Research Grants Total \$60,029**

Grants amounting to \$60,029 have been awarded in Cancer Research to Tennessee physicians, it has been announced by Dr. Charles C. King, President of the Tennessee Division of the American Cancer Society. Dr. P. F. Hahn, Meharry Medical College, Nashville, received \$26,869 for an eight months study of the use of radioactive gold as an aid to surgery of lung cancer. Dr. Ronald C. Fraser, of the University of Tennessee, received \$11,460 for a twenty months study on means of developing experimental immunity against cancer. Vanderbilt University received an institutional research grant of \$15,000 for one year.

### **Programs on Heart Disease**

Six programs to keep the practicing physician abreast of the latest developments in heart disease are available to county medical societies in Middle Tennessee. Six teams of Nashville physicians have agreed to appear on programs sponsored by a county medical society in Middle Tennessee, ac-

cording to Dr. F. Tremaine Billings, president of the Middle Tennessee Heart Association. The program subjects and participating physicians are as follows: (1) "Heart Failure and Kidney Failure"—Dr. Elliott V. Newmann, Dr. Lloyd Ramsey, Dr. William Lacy, Dr. Stephen Schillig; (2) "Cardio-pulmonary Disease"—Dr. James J. Callaway, Dr. Edwin Anderson, Dr. Lloyd Ramsey, Dr. George Holcomb, Dr. Robert Roy; (3) "Myocardial Infarction"—Dr. Tremaine Billings, Dr. George Mann, Dr. James Thomasson, Dr. William Card; (4) "Rheumatic Fever and Rheumatic Heart Disease"—Dr. Robert Quinn, Dr. Mildred Stahlman, Dr. Sarah Sell, Dr. Richard France; (5) "Congenital Heart Disease and Rheumatic Valvular Disease"—Dr. David Strayhorn, Dr. Walter Diveley, Dr. Gordon Sell; (6) "Hypertension and Cardiorenal Disease"—Dr. Samuel S. Riven, Dr. Fred Goldner, Jr., and Dr. Page Harris.

#### Hale-McMillan Lecture

Dr. George T. Pack, noted New York surgeon, delivered the Hale-McMillan lecture on April 30 at Meharry Medical College.

#### Nine State Conference on Insurance Plans Studied at Memphis

Physicians from nine states met at the Hotel Peabody in Memphis on April 25th and 26th to consider ways of formulating special insurance plans for persons 65 years of age and older.

The regional conference sponsored by the American Medical Association's committee on insurance and prepayment plans was held in cooperation with the Tennessee State Medical Association and the Memphis and Shelby County Medical Society.

Representatives from medical associations from Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, Texas and Tennessee attended. The problems discussed at the conference also involved the future of voluntary health insurance and the potential impact of demands of labor unions on medical society sponsored prepayment programs.

### PERSONAL NEWS

**Dr. Harold J. Schwartz**, Vice-President of the Tennessee State Obstetrical and Gynecological So-

cietty, was a guest speaker on the symposium entitled, "First Trimester Pregnancies" at the Kentucky Academy of General Practice Meeting on May 14th in Louisville.

**Dr. Bernard M. Zussman**, Memphis, recently presented a paper before the Southwestern Allergy Forum in Houston, Texas. His subject was "Cement Allergy and Eczema Caused by Sensitivity to Chromates."

**Dr. Edward T. Brading**, Johnson City, is a candidate for the school board.

**Dr. Warren Kimsey**, Chattanooga, was a recent speaker before the Lawyers Club. His subject was "Surgical Approaches to the Joints of the Spine and Sacroiliac" and "Seizure—The Medical and Social Problems of Epilepsy."

**Dr. James W. Davis**, Chattanooga, recently addressed the Southeastern Claim Executives Association. His subject was "Disfigurement Injuries."

**Dr. Phil C. Schreier**, Memphis, was a recent guest speaker before the Sectional Meeting of the Mississippi State Medical Association at Biloxi. His topic was "Conservative Management of Dermoid Cysts of the Ovary."

**Dr. Cyrus C. Erickson**, Memphis, was a recent speaker before the Indiana and Kentucky Chapters of the American College of Surgeons and Kentucky Surgical Society.

**Dr. Robert Wright**, Carthage, has been named Chairman of the Smith County Chapter of the National Foundation.

**Dr. Harris L. Smith** and **Dr. Lorin E. Ainger**, Memphis, have been elected Fellows in the American Academy of Pediatrics.

**Dr. H. A. Schneider**, Chattanooga, recently addressed the Hamilton County Tuberculosis Association.

**Dr. Fletcher Goode**, Millington, has been elected President of the Jaycees.

**Dr. Louis A. Killeffer**, Harriman, has been named to the state public health council.

**Dr. John R. Thompson, Jr.** of Jackson was re-appointed to the public health council.

**Dr. Ira M. Long**, Chattanooga, has been elected President of the Chattanooga-Hamilton County Eye, Ear, Nose and Throat Society.

**Dr. Howard W. Thomas** has announced that he will open an office for the practice of medicine in Selmer.

**Dr. John Q. Adams**, Memphis, was one of the speakers at the Alabama Surgical Section, International College of Surgeons in Huntsville. His subject was "Premature Separation of Placenta."

**Dr. John S. Powers**, Kingsport, has been elected President of the Appalachian Heart Chapter. Other officers include **Dr. Walter A. McLeod**, Johnson City, president-elect; **Dr. John A. Knapp**, Elizabethton, vice-president; and **Dr. J. B. Catron, Jr.**, Kingsport, treasurer.

**Dr. Harris L. Smith**, Memphis, has been named to a Fellowship in the American Academy of Pediatrics.

**Dr. G. Turner Howard**, Knoxville, has been elected a Director of the Allied Security Insur-



ance Company of Charlotte, North Carolina.

**Dr. Charles H. Alper**, Chattanooga, discussed "Cancer of the Larynx" on a TV program "Your Doctor Speaking."

**Dr. Carroll H. Long**, Johnson City, is a candidate for the city commission.

**Dr. Kirkland Todd** and **Dr. Jesse Adams**, Nashville physicians, recently addressed the Tennessee Association of Medical Record Librarians.

Re-elected secretary-treasurer of the American Urological Association was **Dr. Samuel L. Raines**, Memphis.

**Dr. B. F. Byrd, Jr.**, Nashville, has been elected to membership in the American Surgical Association.

**Dr. Douglas H. Sprunt**, Memphis, is the new president of the American Association of Pathologists and Bacteriologists.

**Dr. William E. Beckmann, Jr.**, Chattanooga, spoke on "Cancer of the Bladder" on a recent radio program sponsored by the American Cancer Society. **Dr. Robert A. Waters** of Chattanooga, spoke on "Cancer of the Brain."

"Cancer of the Bone in Children" was the subject presented by **Dr. Richard B. Donaldson**, Chattanooga, on a recent TV program.

**Dr. Alvin E. Keller**, Nashville, participated in a program sponsored by the Middle Tennessee Mental Health Association and the Nashville Academy of General Practice. Dr. Keller discussed the nervous breakdown. **Dr. F. Tremaine Billings**, Nashville, was the moderator of the program.

**Dr. Allan Johnson**, Bristol, has been elected president of the Bristol Tuberculosis Association.

**Dr. Paul Morrissey, Jr.**, Nashville, has been named Chairman of the new health and hospital committee of the Nashville Chamber of Commerce.

## BOOK REVIEW

**Diseases of the Nervous System.** By Sir Francis Walshe: Fellow of the Royal College (February 19, 1959) of physicians of London; Fellow of University College, London; Consulting Physician to University College Hospital, and in the National Hospital For Nervous Disease, Queen Square. 371 pages. The Williams and Wilkins Co., Baltimore, Maryland. (Price \$8.00).

In this ninth edition of a well known textbook the author has altered the section on vascular disorders of the brain to include some of the more recent studies regarding extracranial arterial occlusion and cerebrovascular insufficiency. There have also been some changes in the introductory sections to deal with such subjects as the brain stem activating systems and some of the more recent concepts regarding cutaneous sensibility. The author's son has contributed two chapters on the neurologic complications of liver disease and hepatolenticular degeneration. This addition to the text is of value not only because of the new informa-

tion which it presents, but, in a wider sense, because it reflects the close relationship which must exist between general medicine, neurology and pathology.

It is always a pleasure to recommend successive editions of this book to students and practicing physicians because it is a very lucid and concise introductory work. It possesses a literary attractiveness found in few textbooks on the contemporary scene.

BERTRAM E. SPROFKIN, M.D.

**Neurological Basis of Behavior.** Ciba Foundation Symposium. Edited by G. E. W. Wolstenholme and Cecilia W. O'Connor. 387 Pages, with 109 Illustrations. Boston: Little, Brown and Company, 1958. Price \$9.00.

This volume is the publication of the CIBA Foundation Symposium which was held to commemorate the centennial of the birth of Sir Charles Sherrington. The papers at this symposium were presented by internationally celebrated neurophysiologists, neuroanatomists, neurosurgeons, psychologists and psychiatrists. The subjects discussed range from the early development of ideas relating the mind with the brain to the neurophysiological basis of conditioned reflexes and behavior. Following each presentation there is a discussion and a list of references. Other subjects include the temporal lobe syndrome, the neurological basis of responses to stress, brain enzymes and adaptive behavior, and the relevance of some neurophysiological data to behavior disorders. The text is well illustrated by drawings, photographs, charts and graphs.

The CIBA Foundation is to be commended upon this symposium. This volume deserves a place in every library and will be of great interest to all students and practitioners who are concerned with the nervous system and its function.

BERTRAM E. SPROFKIN, M.D.

## ANNOUNCEMENTS

### Urology Award

The American Urological Association offers an annual award of \$1000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on the result of some clinical or laboratory research in Urology. Competition is limited to Urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forth-coming meeting of the American Urological Association, to be held at the Palmer House, Chicago, Illinois, May 16-19, 1960. For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1959.



### National League For Nursing Fellowship Program

The Commonwealth Fund is providing continuing support for the National League for Nursing Fellowship program. This provides generous fellowships for nurses having superior ability and leadership qualities who are engaged in programs of advanced study. Persons in allied medical fields are being apprised of this program so that they will encourage nurses who have demonstrated their abilities and leadership qualities to avail themselves of this opportunity.

### Medical Licenses Issued to Physicians

The following applicants have been licensed to practice medicine in the State of Tennessee.

Fiser, Carolyn M., Memphis  
Davis, Floyd, Tampa, Florida  
Williams, Willis A., Jr., Maryville  
Atwood, John W., Memphis  
Burkle, George H., III, Memphis  
Herndon, Robert M., Detroit, Michigan  
Holt, Huey T., Memphis

Miller, Jordan E., Memphis  
Pryor, Boyce B., Jr., Memphis  
Richards, Aubrey T., Red Bank  
Jones, Gerald I., Chattanooga  
Stiefel, Joseph W., Chattanooga

### Standardized Claim Forms

The use of Standardized Attending Physician's Statements developed by the Health Insurance Council has been endorsed by insurance companies providing 85 per cent of the group accident and health insurance written by the insurance business.

The Standardized Attending Physician's Statements—developed in cooperation with the American Medical Association—are designed to reduce paper work for physicians, and at the same time provide insurance companies with the medical information they need to process and pay claims. "Simplified Claim Forms for Accident and Health Insurance—A Report to the Physician" have been distributed to all members of the Tennessee State Medical Association and to members of the medical profession in 39 states.

### WANTED

One male psychiatrist, under 50 years, Diplomate or board eligible, to direct privately operated outpatient clinic in Charleston, West Virginia. Salary: \$20-25,000 per annum. Write Box "A" in care of this Journal.

## TENNESSEE STATE MEDICAL ASSOCIATION COMMITTEES 1959—1960

### STANDING COMMITTEES

**Committee on Scientific Work**—R. H. Kampmeier, Chairman, Nashville; Irving R. Hilliard, Nashville; Baker Hubbard, Jackson; James W. Ellis, Nashville; Robert M. Foote, Nashville; J. J. Range, Johnson City; Ira T. Johnson, Jr., Nashville; E. White Patton, Chattanooga; Henry B. Gotten, Memphis; John H. Burkhart, Knoxville.

**Committee on Hospitals**—Henry T. Kirby-Smith, Chairman, Sewanee (1962); Harry T. Moore, Jr., Nashville (1962); W. W. Tribby, Memphis (1961); John W. Adams, Jr., Chattanooga (1961); Merlin L. Trumbull, Memphis (1960); John H. Burkhart, Knoxville (1960); Joseph McK. Ivie, Nashville (1961).

**Legislative and Public Policy Committee**—Chas. C. Trabue, IV, Chairman, Nashville (1964); T. R. Ray, Shelbyville (1962); Ralph O. Rychner, Memphis (1964); William J. Sheridan, Chattanooga (1963); Byron O. Garner, Union City (1960); Addison B. Scoville, Jr., Nashville (1960); R. H. Kampmeier, ex officio, Nashville; Harmon L. Monroe, ex officio, Erwin.

**Liaison Committee to the Public Health Department**—Bland W. Cannon, Chairman, Memphis (1960); Carl E. Adams, Murfreesboro (1960); Wm. A. Garrott, Cleveland (1962); John R. Thompson, Jr., Jackson (1963); Thomas S. Weaver, Nashville (1964).

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# Journal of the Tennessee State Medical Association

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This paper should be read by all who give antibiotics. It emphasizes the points made on occasion on the editorial pages of this Journal that antibiotics, though wonderful tools in the management of infections, have associated hazards which must be balanced against the gain by their use. In other words, they are to be used when the indications are clear-cut.

## Caution—Antimicrobial Agents Ahead\*

HARRISON F. FLIPPIN, M.D.,† Philadelphia, Pa.

Most patients receiving modern antimicrobial agents recover from their illnesses as well as from the effects of the drugs. All practicing physicians have witnessed the powerful curative and preventive actions of these anti-infective compounds. Not only have these drugs saved countless lives but also have shortened convalescence and diminished the incidence of serious complications. Moreover, they have played a prominent role in the "golden era" of the pharmaceutical industry. Even many microorganisms may be rejoicing, in that more and more bacteria are becoming resistant to the action of these agents. Hence, for the most part, the principal participants—patients, physicians, drugs, and bugs—in this new drama are individually well satisfied. However, if one examines some of the relationships and interactions of these four participants it becomes apparent that antimicrobial therapy represents a complex and difficult problem. In the allotted time, several of these interrelationships will be considered.

For the most part, the continued usefulness of an anti-infective agent depends upon the rapidity and number of microorganisms' developing resistance to the drug, and the incidence and severity of toxic reactions associated with its use. In general, both of these factors appear to be related to the

frequency and intensity with which the drug is used. The unwise application of, and poor planning with the sulfonamides undoubtedly led to the premature limitation of their usefulness. However, more recently, with the less widespread use of these drugs, especially as prophylactic agents, the number of drug-resistant organisms has decreased; and, with the consequent development of a large population who had no previous exposure to the sulfonamides, the incidence of untoward reactions to this group of agents has lessened. Likewise, the early enthusiastic use of chloramphenicol was followed by almost complete abandonment of this valuable agent because it was unequivocally implicated in a number of serious, often fatal, blood dyscrasias. Fortunately, this led, for a time, to a more cautious use of chloramphenicol and, for the most part, in selected cases, thus insuring its place in therapy. More recently, however, with the increasing number of stubborn infections, many of which are effectively treated with this drug, the trepidation with which chloramphenicol was formerly used has been somewhat disregarded and the antibiotic is now being administered more indiscriminately. Likewise, penicillin, streptomycin, the tetracyclines, erythromycin and other useful antibiotics are often poorly selected, not needed, or used unwisely, thus limiting their future usefulness.

### Antibiotic-Resistant Organisms

For the most part, acquired bacterial resistance to the antibiotics results from continued exposure to subinhibitory concentra-

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tion of these drugs. Penicillin, in contrast to the other commonly used antibiotics, has long been considered unique, in that, with the exception of a small percentage of staphylococci, there has been no real evidence of penicillin-resistant strains of microorganisms cultured from patients. For the most part little tolerance or resistance to penicillin has been developed by the Group A hemolytic streptococcus, pneumococcus, or meningococcus. Similarly, there is no evidence that *Treponema pallidum* develops resistance to penicillin *in vivo*. Nevertheless, there has been a progressive increase in the number of penicillin-resistant staphylococci, which is perhaps related to the promiscuous use of penicillin over recent years as part of hospital treatment. More recently, penicillin-resistant strains of gonococci are being reported from scattered areas and it is probably only a matter of time until penicillin resistance will be met on an increasing scale all over the world. Hence, acute gonorrhea can no longer be considered light-heartedly as a disease with a certain cure. In light of what is known of the mechanism of action of penicillin, there is no reason to believe that other organisms will not develop resistance to the drug.

Of all the antibiotics, streptomycin exhibits the greatest potential for the development or emergence of resistant strains. Likewise, dihydrostreptomycin behaves in the same manner and cross-resistance between this antibiotic and streptomycin is complete. Novobiocin and members of the erythromycin group—erythromycin, oleandomycin, and speramycin—may show rapid and significant increases in resistance, especially among staphylococci, streptococci viridans, and enterococci. Cross-resistance occurs among the erythromycin-like drugs, whereas there is no cross-resistance between novobiocin and any other antibiotic. Resistance to the tetracyclines has occurred in a large proportion of staphylococci, especially those isolated in hospitals where these agents have been used extensively over long periods, as well as among enterococci, *E. coli*, *Proteus*, and *Shigella*. Although there is essentially cross-resistance among the three tetracyclines, the degree of resistance may vary in different strains. Resistance

to chloramphenicol occurs infrequently, except in cases which have been intensively treated with the antibiotic. Resistance and cross-resistance have not been recorded with the polypeptide group—bacitracin, polymyxin, and neomycin.

### Antibiotic Toxicity

For the most part, every known chemical substance can produce a toxic reaction in man if the exposure is adequate, thus making the use of these agents by man a potential hazard. Admittedly, penicillin is the least toxic of the antibiotics. This advantage cannot be interpreted in favor of its continued use since it is also the most allergenic and is the one most frequently involved in fatal cases. Although the true incidence of allergy to penicillin is unknown, there can be little doubt that it is increasing every year and at the present time represents the primary problem in drug allergy. It has been estimated that about 10% of our population are prone to become sensitive during their lifetime to some food, drug, cosmetic, or other substance. Thus, in this country alone we are concerned with some 17 million individuals who may react to a penicillin contact. There are a variety of types of allergic reaction to penicillin, the most important being the immediate anaphylactic type, which may vary from a few urticarial lesions, or asthma, to shock, unconsciousness and death. For the most part, these reactions begin shortly after the administration of the antibiotic, with the more severe manifestations occurring most rapidly; the majority of fatalities occur within seconds to ten minutes. Although these reactions may follow any route of administration of penicillin, it is well established that serious allergy to the drug is most likely to occur following parenteral administration, especially after repeated intramuscular injections; whereas the oral route is least likely to initiate severe hypersensitivity reactions. This can be explained partly by the fact that when reactions develop following oral medication, they are usually slow enough to treat symptomatically, thus the progression of the reaction usually can be interrupted. Allergic manifestations to topical application of penicillin seem to be confined largely to the milder



cutaneous reactions, although sensitization to the drug occurs most often following this route of administration; sensitization is least apt to develop with oral penicillin. Thus far, most of the severe reactions have occurred in patients having a history of allergic symptoms from previous administration of penicillin or in individuals usually suffering from asthma, hay fever, or eczema. Hence, the incidence of hypersensitivity reactions to penicillin may be reduced if an allergic history is obtained before the drug is administered. However, a careful history will not reveal all the potential allergic reactions, in that prior exposure to unknown sensitization to penicillin by means of the ingestion of penicillin-containing milk and its products, or foods containing penicillium type moulds (Roquefort cheese, etc.), the injection of vaccines containing penicillin, the use of penicillin-contaminated syringes, or by the absorption through the skin of dermatophytes may pave the way for a later unpredictable reaction to the therapeutic use of penicillin. Attempts to predict which patients will react unfavorably to penicillin by means of skin and conjunctival tests are for the most part variable, unpredictable, and are not without danger, in that they may give rise to general hypersensitivity reactions. In patients suffering with immediate anaphylactic reactions to penicillin, the prompt administration of epinephrine, aminophylline, hydrocortisone, etc., has proved highly effective in many instances. However, many deaths occur before these agents can be administered, despite the fact that they are usually found in physicians' offices and bags, and in hospitals. The use of antihistamines and penicillinase in such cases is of no value. Certainly, if a patient gives a history of any sort of reaction to penicillin, even though questionable, or is known to be usually allergic, he should not receive penicillin but rather another anti-infectious agent. The substitution of a hypoallergic type of penicillin in such a case is hazardous. Likewise, antihistamines given concurrently with penicillin may mask valuable warning signals, with anaphylaxis impending when the antihistamine effect wears off. Of course, if one is confronted with an infection in which penicillin is far superior to the other anti-

otics, it should be employed but with utmost precautions. In view of the relatively high incidence of severe allergy to injectable penicillin, it would seem advisable to employ oral penicillin routinely, except in the control of infections involving the blood stream, endocardium, meninges, or the like, in which cases the parenteral route remains the preferred treatment. This practice would for the most part limit the use of injectable penicillin to the treatment of hospitalized patients; the possible exceptions being the office treatment of syphilis, the control of rheumatic fever in selected cases, and the home care of patients suffering with severe infections in whom oral medication is impractical.

Like penicillin, streptomycin also produces sensitization, especially from contact and may also be responsible for fever and rashes of varying severity. The major toxic effect of this drug, however, is on the eighth cranial nerve, producing vestibular damage or deafness the former is most frequent with streptomycin, and the latter with dihydrostreptomycin. In contrast to penicillin, hypersensitivity reactions to chloramphenicol, erythromycin, and the tetracyclines have not been observed except in rare instances with the last group of drugs. However, these so-called "broad-spectrum" antibiotics may cause varying degrees of gastrointestinal irritation which also may give rise to sore tongue or black tongue, cheilosis, or rectal irritation. Most of the severe reactions follow the use of the tetracyclines in that superinfections are most commonly associated with these drugs. Of this group, enterocolitis due to staphylococcus superinfections are the most severe and, of these, about 60% occur following abdominal surgery. The mortality rate in such cases is about 30 per cent. As indicated above, chloramphenicol has been implicated as a cause of certain hematologic disorders. Novobiocin produces skin reactions in about 10% of all patients receiving the drug for more than a week. Cases of agranulocytosis have also been attributed to this antibiotic. Bacitracin, polymyxin, and neomycin all produce renal damage if given in sufficient doses and over sufficiently long periods. In addition, polymyxin produces paresthesias



and some vestibular dysfunction quite regularly when used in moderate doses.

### Conclusions

From the above, it is apparent that all of the commonly used antibiotics may lose their therapeutic usefulness through the development of drug-resistant bacteria, or, because of the untoward reactions following their use. At this time it appears that the problem of antibiotic-resistant bacteria is the greatest fear in the future with chronic infections as these are usually mixed infections and are perpetuated by physiologic and anatomic defects in the host. In such instances these drugs cannot do more than provide temporary help, hence should be reserved to prepare the patient and carry him through the period necessary for the correction of an anatomic or physiologic defect. Thus, the best way to prevent the emergence of resistant strains is by the rapid termination of the infection and the optimum correction of anatomic defects. With the exception of the tuberculostatic drugs, the use of multiple antimicrobial agents has proved disappointing in preventing the development of drug-resistant organisms. This is probably partly due to the fact that resistant bacteria often represent

new organisms of nosocomial origin, rather than the emergence of resistant variants of the original strains. No doubt, the increasing incidence of drug-resistant staphylococci found in hospital practice is due to the fact that hospital personnel harbor these organisms and transmit the same either directly or indirectly to the patient. Certainly, the first line of defense against this problem is to block the channels of transmission of the pathogens from these carriers which would mean a return to more rigid hygienic measures, rather than by administering antimicrobial agents which may aggravate rather than solve the problem.

In general, the more serious toxic reactions from the antibiotics may be avoided by knowledge of the hazards of each agent, using recommended dosages, avoiding undue prolonged administration of the drug, and using the more toxic agent only when a less toxic drug is ineffective. Finally, in order to insure these valuable agents' place in therapy, they should not be employed as therapeutic panaceas for minor, nondescript ailments or as protective "umbrellas." Rather, they should be reserved for the control of infections in which their usefulness has been proven.

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### Depressive Reactions in Hypertensive Patients. A Comparison of Those Treated with Rauwolfia and Those Receiving No Specific Antihypertensive Treatment. Quetsch, Richard M., Aehors, Richard W. P., Litin, Edward M., and Faucett, Robert L. *Circulation* 19:366, 1959.

It has been known for the past 5 years that caution is needed in the use of Rauwolfia preparations in hypertension, as well as for other uses. Cases of severe mental depression, reported by Freis, Wallace, and numerous others, have indicated that use of this drug is limited. This study was undertaken to determine, first, whether there are any factors that may contribute to the occurrence of depression in hypertensive patients; second, whether Rauwolfia drugs actually do enhance the production of such reactions; and, third, whether it is possible to predict which patients may be especially susceptible to depressive reactions.

Three hundred and ninety-one (391) patients were studied, all with blood pressures of 175/100 or over. The study showed that persons with a prior history of depressive reactions are likely to have such reactions again while taking Rauwolfia and a substantial number of persons who have no apparent past or present history of depres-

sion may still experience severe depression while under treatment with Rauwolfia. The average dose that was given these 391 patients was 0.55 mg. of reserpine daily. One person, who became severely depressed, was given as little as 0.2 mg. per day. The average daily dose of reserpine, however, was 0.62 mg. per day for those patients who became depressed. The average time of onset of depression came about five months after starting Rauwolfia and in 85% the depression occurred before six months. The study showed that depressive reactions were five times more frequent in the Rauwolfia group than in the group not treated with Rauwolfia.

It was the authors' opinion, from this study, that any person who had a prior history of mental depression should not receive Rauwolfia. In addition, the use of these drugs should be undertaken only after careful evaluation of the patient's need for treatment and a thorough appraisal of his emotional status. Finally, it was felt that other methods, rather than Rauwolfia, should be used to control blood pressures, even after careful evaluation of the person's emotional status had been made. (Abstracted for the Middle Tennessee Heart Association by Arthur Anderson, M.D., Nashville.)

This esophageal lesion is being recognized more frequently by radiologists as the clinical history pointing to the possibility of this disturbance is appreciated by the doctor.

# Esophageal Hiatus Hernia of the Diaphragm\*

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Within the last decade the concept of esophageal hiatus hernia of the diaphragm has changed almost completely. Formerly, the condition was felt to be chiefly an incidental finding, rarely symptomatic, and of little clinical importance. The anatomy of the hiatal region was inadequately described in most textbooks and the physiologic mechanisms responsible for competence of the esophagogastric junction were not appreciated. We now know that the presence of a hiatus hernia is not an incidental finding and that the condition is not only capable of producing severe symptoms but may also result in extremely serious complications if uncorrected. A considerable portion of the credit for our present views in regards to hiatus hernia belongs to Mr. P. R. Allison<sup>1</sup> of Leeds, England, who, in 1951, published his classic essay "Reflux Esophagitis, Sliding Hiatal Hernia, and the Anatomy of Repair." In his treatise he described not only the anatomy of the hiatal region but also the pathologic physiology involved in herniation of the stomach through the hiatus.

## Anatomic and Physiologic Considerations

*Anatomy.* The esophageal hiatus of the diaphragm is formed basically by the right crus of the diaphragm, which arises usually from the upper three lumbar vertebrae, passes upward and then splits into two bands of muscles to ensheath the esophagus. The left crus contributes virtually nothing to the hiatus. As Allison has pointed out, the right crus then acts as a sling around the esophagogastric junction which it angulates as the diaphragm contracts. Consequently, as the individual inspires and creates a negative pressure within the thorax, the contraction of the crus angulates the

esophagogastric junction and prevents reflux into the esophagus from the stomach.

*Physiology and Pathologic Physiology.* Competence at the esophagogastric junction for the prevention of the reflux of the gastric contents back into the esophagus is dependent chiefly upon three factors. These are:

(1) The oblique entrance of the esophagus into the stomach.

(2) The presence of muscle fibers at the esophagogastric junction running in many planes, achieving thereby a weak sphincter effect.

(3) The angulation produced by contraction of the right crus of the diaphragm.

Of these factors, the last is by far the most important.

Three types of herniations through the esophageal hiatus have been described. First, is the rare congenitally short esophagus, secondly, the common sliding type of hernia, and thirdly, the so-called paraesophageal or parahiatal hernia in which the cardia remains at or below the level of the diaphragm. A fourth group has been described which is simply a combined type of hernia with the sliding and parahiatal elements both present. It has been felt that a differentiation of these different types of hernias is of clinical significance because of a difference in the symptoms produced by each type. The congenitally short esophagus and sliding type of hernia produce their symptoms chiefly through reflux. In the parahiatal hernia symptoms may be due to angulation and obstruction at the esophagogastric junction. Sweet<sup>2</sup> has stated that in the parahiatal type of hernia the herniation occurs outside or lateral to muscle fibers of the hiatal rim and if one searches closely these fibers, even though attenuated, will be found anchoring the esophagogastric junction at or slightly above its usual level. On the other hand,

\*Presented at the meeting of the Tennessee Academy of General Practice, April 13, 1959, Memphis, Tenn.

Marchand<sup>1</sup> has recently questioned this classification and feels that the so-called parahiatal hernia is simply a variation of the sliding type in which the cardia has been retarded by the phreno-esophageal ligaments and the left gastric vessels. This latter view would seem to be substantiated by our own clinical experience in that we have invariably found some upward displacement of the cardia in the hernias that appear to be predominantly parahiatal, or combined types, on x-ray examination. If we then accept Marchand's premise we find that the symptoms of all types of hiatus hernias, with few exceptions, are due to basically the same mechanism. It is true, however, that in the large hernias in which the cardia has been retarded, obstruction may occur at the esophagogastric junction.

#### **Causes of Hiatus Hernias**

The etiology of esophageal hiatus hernias is obscure. There are certain factors, however, which appear to unquestionably favor their formation. Probably the most important of these is pregnancy. It is not infrequent to obtain a history from a middle-aged woman of severe dyspepsia during her pregnancies which subsided following termination of the pregnancy. In later years, symptoms identical to those suffered during pregnancy have recurred and are associated with the presence of a hernia. It is believed that pregnancy influences the formation of the hernia in two ways. First, the increase in the abdominal pressure or packing, as it were, of the abdominal cavity tends to force the stomach through the hiatus into the mediastinum. In addition, during pregnancy changes occur in the connective tissues which tend to increase the elasticity of these tissues allowing the hiatus to stretch more easily. Even though the hernia may regress into the abdominal cavity following pregnancy, the stretching and pressure on the connective tissues around the hiatus during the period of temporary herniation may result in atrophy of the connective tissues with subsequent relaxation or enlargement of the hiatus. A second important factor is obesity, which in some respects acts in the same manner as pregnancy in that the accumulation of fat within the peritoneal cavity increases the pressure and tends

to force the stomach through the hiatus. The importance of these factors would appear to be substantiated by the fact that reduction in weight frequently relieves or greatly improves the symptoms of reflux esophagitis, and often in pregnancy the symptoms disappear following termination of the pregnancy. Other factors are undoubtedly involved in the production of hiatus because sometimes we see individuals who are neither obese nor have had a pregnancy and yet develop a markedly symptomatic hernia. The role of trauma in the production of this condition is not well established.

#### **Symptoms**

Herniation of the stomach through the hiatus upsets the sphincteric mechanism and sets the stage for reflux of the gastric contents into the esophagus. Since the mucosa of the esophagus is squamous epithelium and not designed to withstand the eroding action of the gastric contents, an actual inflammatory reaction—esophagitis—may result. Or, even though a visible inflammatory reaction may not be produced, spasm of the esophagus may result from the irritant action of the gastric contents. Typically, these symptoms are: sour eructations, excessive flatulence, burning epigastric or substernal pain usually coming an hour or more after meals, particularly upon lying down, and relieved by assuming the upright position. One frequently obtains the history that the individual is unable to lie down within two or three hours after a meal, or may be awakened at night by substernal pain which can be relieved by sitting up or getting out of bed. The pain may radiate into the neck, shoulder, or even down the arm and may be indistinguishable from the pain of coronary insufficiency or myocardial infarction. Also, occasionally, the individual will complain of reflux of gastric contents into the pharynx, or he may simply awaken at night strangling severely. Not too uncommonly, particularly in obese women, bending over will produce reflux into the pharynx.

#### **Diagnosis**

The diagnosis of hiatus hernia of the diaphragm is greatly facilitated by a high index of suspicion. Anyone presenting any



of the symptoms outlined previously should be suspect. The diagnosis is made by x-ray examination and by this alone. This may be rather difficult diagnosis to make, however, and it is not uncommon for an individual to have had several negative gastrointestinal series before a hernia is demonstrated. Recent improvements in the technic of demonstrating them, particularly methods of increasing intra-abdominal pressure with binders, has facilitated the diagnosis. Also, radiologists are now more conscious of the frequency and importance of the condition and are making a more concerted effort to demonstrate it routinely on gastrointestinal series. Esophagoscopy is very valuable in determining the presence or absence of esophagitis, but does not play an important role in establishing the diagnosis. The typical finding at esophagoscopy in hiatus hernia is the facility with which the esophagoscope is introduced into the stomach. Normally, as one passes the esophagoscope down the esophagus, one finds that the esophagogastric junction lies anteriorly and to the left, and passage of the esophagoscope into the stomach requires considerable manipulation. In the presence of a hiatus hernia, however, the scope literally falls into the hernia as a rule. Occasionally, in those hernias associated with considerable spasm esophagoscopy may be difficult, or in the type that has been referred to in the past as parahiatal, obstruction at the esophagogastric junction may be produced by the angulation. Again, the most important factor in diagnosis is a high index of suspicion and also the realization that one or even several negative gastrointestinal series does not rule out the presence of a hernia.

### Complications

As mentioned previously, the hernia may produce no esophageal changes and actually may be asymptomatic. When changes are produced these may run the whole gamut from a mild esophagitis to ulceration, hemorrhage, stricture formation, or, rarely, perforation. In my experience the last complication, perforation, has been extremely rare although it probably plays a role in the so-called spontaneous perforations of the esophagus that occur after prolonged vomiting. Ulceration is unusual but by no means

rare. The vast majority of the patients we have seen with esophageal hiatus hernias have had esophagoscopy and only a small percentage of those with definite symptoms have failed to show some degree of esophagitis.

### Treatment

At the present time we are not prepared to recommend surgical intervention in all hiatus hernias. Nevertheless it is quite likely that within the next few years we will see the same philosophy adopted here as has been adopted toward the treatment of inguinal hernias. Conservative treatment can never cure a hernia even though the symptoms are relieved. However, since a major surgical procedure is involved, we have adopted an attitude which lies somewhere between the conservative and radical approach. If a hernia is moderately symptomatic and a definite esophagitis is not established at esophagoscopy, conservative management is warranted. The conservative management consists chiefly of weight reduction, if the individual is overweight, having the individual sleep with the head and shoulders moderately elevated and the use of the antacid and antispasmodic medication. If the symptoms are promptly and completely relieved by this regimen we see no reason, at the present time at least, to proceed with surgical repair.

If esophagitis is present, however, we feel that repair is definitely indicated, because even though the symptoms and esophagitis are controlled for a period of time the esophagitis invariably recurs. Also, esophagitis is the first step in formation of a stricture. The presence of a stricture can be an extremely serious complication for one may then be forced into resecting the involved area, a formidable procedure attended by a far greater morbidity and mortality rate than simple repair of the hernia. For the same reason, repair is mandatory when ulceration is present, and obviously the presence of a stricture is an absolute surgical indication. Incidentally, in our experience we have been surprised by the number of individuals who have had rather marked narrowing of the terminal esophagus and yet responded satisfactorily to simple repair of the hernia. Hemorrhage, a not infrequent complication, is also vir-

tually a mandatory surgical indication. Injection or crushing of the phrenic nerve has no place in the treatment of hiatus hernia. Relief of symptoms by such procedures has previously been reported, but this is certainly open to question. It has been conclusively shown by Lam and Kenney<sup>4</sup> and others that the phrenic nerve has no influence on the hiatus itself, and if one accepts the mechanism previously outlined for the production of symptoms in hiatus hernia, it is apparent that the phrenic nerve could have little or no influence in producing or alleviating the symptoms.

*Surgical Technic.* We do not wish to spend a great deal of time in discussing the details of the surgical technic in correcting esophageal hiatus hernias. In this presentation we have been interested chiefly in stressing the importance of the condition, its recognition, and institution of proper therapy. However, I would like to outline briefly the principles of repair and our results. The technic which has become rather standard in the repair of hiatus hernias is basically that outlined by Allison<sup>1</sup> in 1951. This is comprised of two basic principles. First, the re-suturing of the phreno-esophageal ligaments to the under surface of the diaphragm in order to anchor the esophagogastric junction in its normal position, and secondly, reapproximation of the crus posterior to the herniated stomach. Numerous modifications of this technic have been made but most of the modifications are relatively minor ones. The same technic holds true whether the hernia is repaired transabdominally or trans-thoracically. We have repaired all of ours through the trans-thoracic approach believing that this approach allows the best access to the hiatus and herniated stomach and at the same time is extremely well tolerated by the individual. On the other hand, we have recommended the abdominal approach in cases in which symptoms were not clear-cut or when proven or suspected concomitant abdominal disease was present.

Our technic consists of a trans-thoracic approach through the seventh or eighth interspace. After retracting the lung upward and the diaphragm downward, the mediastinal pleura is divided. A tape is then passed around the esophagus to facilitate

freeing of the stomach and hernial sac from the surrounding tissues by blunt and sharp dissection. The sac covers only a portion of the stomach, and since this is a true sliding hernia, we feel that the sac is of relatively small importance. In addition, we believe that opening the sac not only fails to add to the procedure but actually handicaps us in repair because the sac seems to disintegrate. The technic of Humphreys and associates<sup>5</sup> in placing circumferential sutures through the muscle of the stomach, just below the esophagogastric junction to anchor the stomach to the under surface of the diaphragm anteriorly and anterolaterally on either side is used. This usually requires three or four sutures. The crus is then approximated posteriorly with interrupted black silk sutures, incorporating a small bite of the stomach wall just below the esophagogastric junction in the suture closest to the hernia in order to maintain reduction of the hernia. The mediastinal pleura is then left open for drainage and the chest closed with a single thoracotomy tube left in place. We have been surprised at the lack of significant postoperative morbidity encountered even in elderly individuals and individuals with limited pulmonary reserve.

To date 65 hernias have been repaired through this approach with one death. This death occurred in the ninth postoperative day from perforation of an acute gastric ulcer on the greater curvature which had not been demonstrated in a gastrointestinal series performed several days prior to operation, and apparently developed in the immediate postoperative period. There have been four recurrences demonstrated in this group to date. One is asymptomatic, 2 have been subsequently re-repaired and are asymptomatic at the present time. The fourth is awaiting a second repair. In each of the 2 recurrences we have operated upon, we believe the recurrence resulted directly from sutures pulling out of the right limb of the crus and have taken steps subsequently to prevent this occurrence. In general, we have been extremely satisfied with the results and feel that the present rate of recurrence, although not optimum, means that this is a condition which can be satisfactorily corrected surgically.

### Summary and Conclusions

The present concept of esophageal hiatus hernia of the diaphragm has been presented. It is well established that hiatus hernia is not an incidental finding but is a definite clinical entity capable of producing severe symptoms and serious, even fatal, complications. The anatomy, physiology and pathologic physiology of hiatus hernia have been discussed. The clinical picture and some of the difficulties encountered in diagnosis have likewise been discussed. We feel that this is a correctable condition and a brief summary of 65 cases of operative repair is presented.

### References

1. Allison, P. R.: Reflux Esophagitis, Sliding Hiatal Hernia and the Anatomy of Repair, *Surg. Gynec. & Obst.* 92: 419, 1951.
2. Sweet, R. H.: Esophageal Hiatus Hernia of the Diaphragm: the Anatomical Characteristics, Technic of Repair and Results of Treatment in 111 Consecutive Cases, *Ann. Surg.* 135: 1, 1952.
3. Marchand, Paul: The Anatomy of Esophageal Hiatus of the Diaphragm and the Pathogenesis of Hiatus Herniation, *J. Thoracic Surg.* 37: 81-91, 1959.
4. Lam, C. R., and Kenney, L. J.: The Problem of the Hiatus Hernia of the Diaphragm, *J. Thoracic Surg.* 27: 1, 1954.
5. Humphreys, G. H., Ferrer, J. M., Jr., and Weidel, P. D.: Esophageal Hiatus Hernia of the Diaphragm, *J. Thoracic Surg.* 34: 749, 1957.

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### **An Evaluation of Intermittant Peritoneal Lavage.** Doolan, P.D. et al. *AM J. Med.* 26:831, 1959

Since the Second World War there has been great interest in various forms of dialysis to prolong life in acute renal insufficiency. Seligman et al were pioneers in using the peritoneal surface as a dialysing membrane but their technique of continuous lavage, while effective, was very laborious and offered no advantages over hemodialysis by the artificial kidney since special equipment and a very experienced team of workers were necessary. Intermittent peritoneal lavage utilizing readily available commercial hospital intravenous solutions and needing almost no special equipment was shown by these workers to be both effective and safe. From ten to fifty-three separate lavages were performed on 11 patients with various forms of renal failure with excellent clinical response and with preservation or prolongation of life. Excess urea nitrogen, potassium and excess water, in cases of pulmonary edema, was effectively removed with intermittent peritoneal lavage lasting usually two hours. Potassium intoxication was effectively treated. Over-hydration of the patient was not observed. There was little discomfort during the procedure and peritonitis in these patients was not a problem. In the treatment of pulmonary edema during acute renal failure intermittent peritoneal lavage appears to be more effective than is hemodialysis using the usual types of artificial kidney. (Abstracted for the Middle Tennessee Heart Association by Ralph Massie, M.D., Nashville.)



Not only is the diagnosis of the Cushing's syndrome more definitive, but the same holds true for the surgical treatment. The steroids have made it possible to elect radical methods of treatment.

## THE SURGICAL TREATMENT OF CUSHING'S SYNDROME\*

J. L. FARRINGER, JR., M.D.,† Nashville, Tenn.

If untreated, Cushing's Syndrome will result in death of the patient in a high percentage of cases. Plotz and associates<sup>1</sup> found in their series of 33 patients, collected over a 20 year period, that half of the patients were dead within five years from the time the disease became manifest. In the collected cases from the literature prior to 1953, they found an autopsy had been performed on 114 patients who died with Cushing's Syndrome. In 46.6% death was attributable to bacterial infection (this included patients who died both before and after the availability of antibiotics). Twenty-seven per cent died of cardiac failure and 13% of cardiovascular accidents or renal insufficiency.

When the invalidism produced by the hypertension resulting from this syndrome, as well as the mental problems that seem so often to accompany Cushing's Syndrome are added to the mortality, one is moved to consider even the most extensive surgery as a means of arresting the progress of this clinical picture.

Interest in the syndrome, described by Cushing<sup>2</sup> in 1932, began to rise sharply after the introduction of ACTH and cortisone. This was true because the similarity between the clinical picture that Cushing had attributed to basophil adenomas of the pituitary and the clinical picture of hyperadrenalism was recognized. Also, these newly available steroids offered new means of sustaining patients with adrenalectomy during the postoperative phase.

In 1951, Priestley and collaborators<sup>3</sup> reported 29 cases of Cushing's Syndrome in which operation had been done. Twenty of

these patients were prepared for surgery with aqueous adrenal cortical extract and, although the immediate shocklike reaction was averted, a delayed reaction consisting of anorexia, vomiting and alteration in the chemical composition of the blood occurred. The last 9 patients were given cortisone replacement therapy with improved results. The authors advocated total removal of one adrenal and resection of 90 to 95% of the other adrenal in patients with adrenal hyperplasia. They were able to follow the course of 20 of their cases and found 19 obtained remission. Three patients subsequently had a relapse, however, and 3 had adrenal insufficiency.

By 1953, Sprague, Kvale, and Priestley<sup>4</sup> were able to report 50 patients who had had total removal of the adrenal gland on one side and 90 to 95% resection of the other gland. Of the 41 patients in remission at the time of writing, 6 had required subsequent operation for the removal of additional adrenal tissue. Twenty of these 41 patients required exogenous cortisone in amounts about equal to that usually needed after bilateral total adrenalectomy.

Cope,<sup>5</sup> in 1955, reported on 46 patients in whom adrenalectomy had been performed on one side followed by a 90 to 95% resection of the remaining adrenal.

In 1957, Montgomery and Welbourn<sup>6</sup> reported 13 cases in which they had operated for Cushing's Syndrome. In one patient adenoma of the adrenal was found and removed. The remaining 12 patients had total adrenalectomy on one side and removal of 90 to 95% of the remaining adrenal. Of their 13 patients 9 underwent remissions of the disease but only 5 have been able to discontinue the taking of cortisone.

Heinbecker, O'Neal and Ackerman<sup>7</sup> reported 16 cases of tumors of the adrenal cortex and, in addition, collected data on

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272 cases reported in the literature through 1955. In their own cases they have based the diagnosis on a clinical picture, a diabetic type of glucose tolerance curve and on elevation of 17-ketosteroids and 17-hydroxycorticosteroids. They report only slight elevation of these steroid levels after administration of ACTH, and suppression of the urinary steroid secretion in only one case after the administration of cortisone. They report 4 operative deaths in their 16 cases and attribute 3 of these to inadequate steroid therapy. The fourth patient had extensive metastasis to the liver at the time of operation. Five of their 6 surviving patients with benign tumors are well, while a fourth has residual hypertension of a moderate degree.

#### Clinical Material

Eleven patients have been operated upon for hyper-secretion of the adrenal cortex at the Vanderbilt University Hospital during the years 1953 through 1958. Four of these patients had neoplasms of the adrenal cortex and 7 bilateral adrenal hyperplasia.

This group includes 4 males and 7 females. Their ages ranged from 9 months to 47 years. All but one of these patients exhibited the common features of Cushing's Syndrome. In each patient, except the infant, there was rounding of the face, marked truncal obesity with a tendency for the limbs to be spared the fat deposition. (Fig. 1 and 2.) The infant exhibited obesity of the extremities as well as of the trunk.

Plethora and lethargy were recorded for 9 patients; the infant and a 38 year old woman being the exceptions. Mottled reddening of the face, neck and forearms was present in 3 patients, in one of whom it was the presenting complaint for which she sought medical advice. In the year or less during which these patients have been followed since operation, the red areas have not faded but remain the only mark of the Cushing's Syndrome the patients still carry. Menstrual irregularity was recorded for only 2 women exhibiting hirsutism, but their 17-ketosteroids were no higher than those of the other women in the series.

The hematocrit on the 10 adult patients ranged from 42.8 to 50% and the hemoglobin of the infant was 14 Gm. These

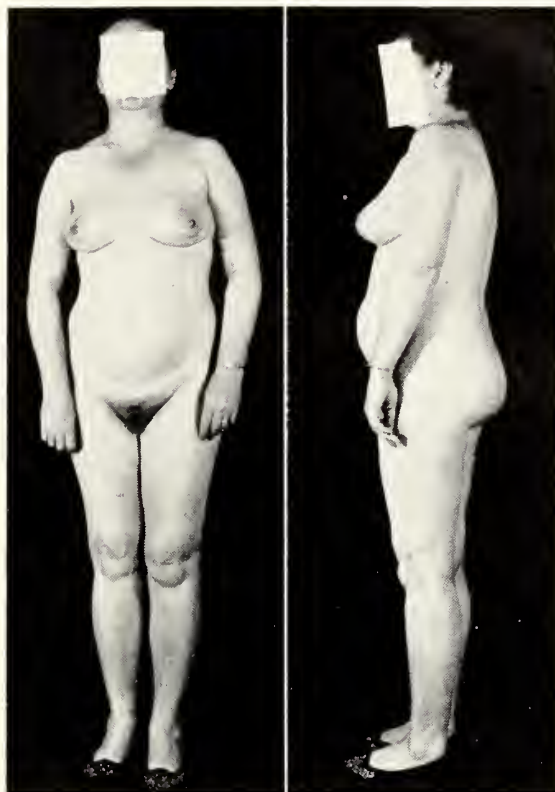


FIG. 1. The classical appearance of Cushing's Syndrome.

values are somewhat higher than those obtained on the average patient in this hospital. This polycythemia, which was described by Cushing<sup>2</sup> in his original report, was cited by Montgomery and Welbourn<sup>4</sup> as being frequent but not constant in their experience, while Plotz, Knowlton and Ragland<sup>1</sup> say it was present in only half their cases.

Urinary steroid determinations were made on each of these patients and found to be elevated beyond the normal range. The method of Porter and Silber<sup>5</sup> was used to determine the 17 hydroxycorticoids and the method of Callow, Callow and Emmons<sup>6</sup> to determine the 17-ketosteroids.

Only the resting levels of urinary steroids were determined for 2 patients who were admitted in 1953 and in 1955. The remaining 9 patients were subjected to the "standard ACTH stimulation test" which is performed by an intravenous infusion of 50 units of corticotropin over exactly 8 hours. Most normal adults excrete from 20 to 40 mg. of 17-hydroxycorticoids during the 24 hour period that begins with the start of the infusion.



Table 1  
URINARY STEROID STUDIES

Patient	17 Hydroxycorticosteroids				17 Ketosteroids			
	Resting	ACTH	2 mg. $\Delta^9$ FF	8 mg. $\Delta^9$ FF	Resting	ACTH	2 mg. $\Delta^9$ FF	8 mg. $\Delta^9$ FF
HDB	23	69	16	3	37	60	17	4
RCJ	28	83	20	7	13	55	36	7
RNB					15.4			
CAW	17	45	13	4	27	30	21	6
MP	21	53	18	10	11	17	19	
EW	13	63	8	8	14	35	11	11
FE	18	60	13	10	19	61	15	9
ABD	15	21	20		51	39	46	
MS	19	18	18	20	9	11	10	8.1
VW	20	49		27	17	24		16
LSG	6				0.65			

The results of the determination of urinary steroids on the patients in this series are shown. The top 7 patients had bilateral adrenal hyperplasia; the 4 listed below had neoplasm of the adrenal cortex.

In addition to the above determinations the 9 patients admitted since 1955 were also subjected to the suppression test described by Liddle.<sup>11</sup> In this test the patient is given  $\Delta^9$ -9 $\alpha$ -fluro-hydrocortisone ( $\Delta^9$ FF) first in the amount of 0.5 mg. every 6 hours, and if this fails to suppress, then in the amount of 2 mg. every 6 hours. The smaller dosage causes a fall in 17-hydroxysteroids to about 1 mg. daily in normal individuals.

The results of the urinary steroid determinations in our patients can be seen in table 1. It can be seen that all the patients with bilateral adrenal hyperplasia, who were subjected to the test, showed a marked

elevation of the 17-hydroxysteroids after the ACTH test. In every case the level was above the 40 mg. normal level. It is to be noted that in only one of these patients was there significant suppression of the 17-hydroxycorticoids by the 0.5 mg. dosage of  $\Delta^9$ FF. In this patient the suppression did not approach that expected in a patient with normal adrenal response. There was, however, marked suppression with the larger dosage of  $\Delta^9$ FF, in all cases proven to be bilateral adrenal hyperplasia. These responses are characteristic of adrenal hyperplasia and according to Liddle<sup>11</sup> distinguish this condition from neoplasms of



FIG. 2. The appearance (a) of a patient before and (b) 6 months after removal of an adenoma of the adrenal cortex.



the adrenal cortex. Table 1 likewise shows that in 2 out of 3 patients with neoplasms of the adrenal cortex, the ACTH test failed to evoke a marked rise in the urinary excretion of steroids. Figure 2 shows these determinations graphically.

The other laboratory data on this group of patients followed the classical Cushing's pattern of low to low normal potassium, low or normal serum chlorides and a diabetic type glucose tolerance curve.

Treatment

*Medical Management.* The preoperative preparation of these patients varied from year to year but those in the last two years have received only routine preoperative preparation with no steroids being administered prior to the induction of the anesthetic. At the present time our practice is to start an infusion of 1000 cc. 5% dextrose in distilled water containing 100 mg. hydrocortisone sodium succinate at the time the operation is started so this infusion will be in progress when the adrenal gland is removed.

Six hours after operation 1000 cc. 5% Dextrose containing 100 mg. of hydrocortisone sodium succinate (Solu-Cortef) is administered intravenously. The patient is given 100 mg. of Solu-Cortef intramuscularly every 4 hours from the second until the 24th hour after operation. From the 24th to 48th hour, 100 mg. of Solu-Cortef is given

every 6 hours. From the 48th to 72nd hours postoperative 50 mg. of Solu-Cortef is administered every six hours. From the third to sixth day after operation 20 mg. of hydrocortisone is given by mouth each 6 hours. This dosage is reduced to 10 mg. every 6 hours on the sixth and seventh postoperative days.

In patients in whom a suppressed adrenal gland remains after the removal of a tumor, 200 units of zinc corticotropin are given each day on the eighth and ninth days. From the 10th to 13th days 100 units of zinc corticotropin is sufficient for most patients. From 14 to 60 days, 80 units of zinc corticotropin is used and thereafter the dosage is regulated and given only as needed to overcome feelings of weakness. (Table 2.)

Those patients who have no adrenal tissue remaining are carried after the seventh postoperative day on 10 mg. of hydrocortisone every 6 to 8 hours and fludrocortisone 0.1 mg. daily. (The latter steroid is a salt retaining agent.) This replacement schedule is given in table 3.

*Operative Management.* Since all of the patients were not operated upon by the same surgeon a variety of surgical approaches was used. If one is confident that the patient has bilateral hyperplasia, an approach to the adrenal through the bed of the twelfth rib on each side has the advantage of no interference from the abdominal

Table 2  
STEROID THERAPY FOLLOWING ADRENALECTOMY  
FOR ADENOMA OF ADRENAL CORTEX

Time Interval	Solu-Cortef Intravenously	Solu-Cortef Intramuscular	Hydrocortisone Oral	Zinc Corticotropin Intramuscular
During operation	100 mg.			
Two hours after operation	100 mg.			
8, 12, 16, 20 & 24 hrs. after operation		100 mg.		
24 hrs. to 48 hrs. after operation		100 mg. every 6 hrs.		
48 hrs. to 72 hrs. after operation		50 mg. every 6 hrs.		
3rd to 6th days after operation			20 mg./6 hrs.	
6th and 7th day after operation			10 mg./6 hrs.	
8th and 9th day after operation				200 units daily
10th thru 13th day after operation				100 units daily
14th to 60th day after operation				80 units every other day
60 to 90 days				60 units every other day
90 to 180 days				30 to 40 units p.r.n.

Table 3  
STEROID THERAPY FOLLOWING BILATERAL ADRENALECTOMY

Hours or Days Postoperative	Solu-Cortef Intravenous	Solu-Cortef Intramuscular	Hydrocortisone Oral	Fludrocortisone
During operation and day of operation	100/1000 cc of i. v. fluids given at rate of 100 cc per minute			
24-28 hrs.		50 mg. every 6 hrs.		
48-72 hrs.		50 mg. every 8 hrs.		
3rd and 4th days		20 mg. every 6 hrs		
5th day			10 mg. every 6 hrs.	0.1 mg. daily
Maintenance			10 mg. every 8 hrs.	0.1 mg. daily

viscera and is perhaps less shocking to the patient. The decision as to whether to remove both adrenals at the same operation or to remove one adrenal and then approach the other in two to three weeks must be made for each patient according to his condition both before and during the operation. In this series both methods have been used with success.

When the preoperative impression is neoplasia of the adrenal cortex, and the side on which it is located is not known, I prefer a transverse abdominal incision permitting extension to either side after palpation of the tumor. This incision can also be extended into a thoraco-abdominal incision if the size of the tumor or conformation of the patient requires it. The blood supply to the left adrenal can be safely approached as shown in figure 3. As suggested by

surgeon to locate the left adrenal vein. With larger tumors removal of the spleen may be necessary after the blood supply of the adrenal gland has been secured.

On the right side the hepatic flexure of the colon is retracted inferiorly and the duodenum is mobilized by incising the peritoneum along its lateral border. This incision in the peritoneum is extended upward to the posterior, inferior surface of the liver. (Fig. 4.) Then with the right

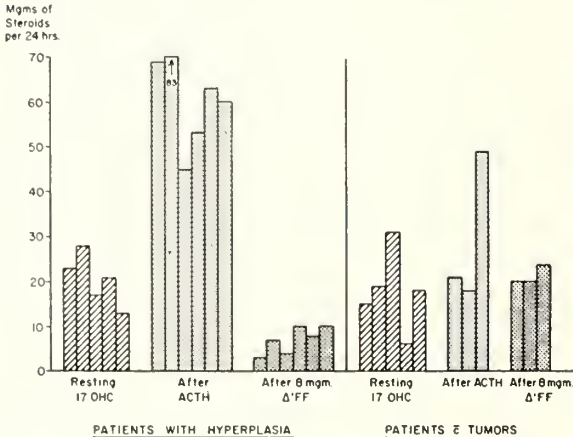


FIG. 3. This graph indicates the marked response to ACTH shown by patients with bilateral hyperplasia and the amount of depression produced by Δ<sup>4</sup>FF.

Hardy,<sup>10</sup> the gastrocolic ligament is incised exposing the pancreas. The posterior peritoneum can then be incised at the inferior border of the pancreas and the pancreas retracted cephalad. This exposes the fat overlying the left renal vein and allows the

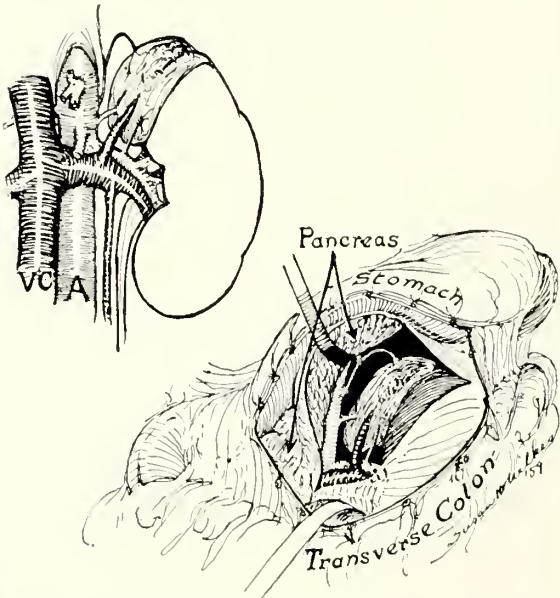


FIG. 4. The gastrocolic ligament has been divided and the posterior peritoneum incised allowing the pancreas to be reflected cephalad. The fat overlying the renal veins has been dissected exposing the adrenal vein. Insert: shows the anatomic relations of the left adrenal gland.

lobe of the liver retracted with a well padded retractor, or an assistant's hand, the superior pole of the kidney and the adrenal gland can be visualized. The adrenal vein usually leaves the adrenal gland from its anterior surface and travels a very short course to the vena cava. An accessory adrenal vein frequently courses to the right renal vein. (Fig. 5.) Here, as on the left

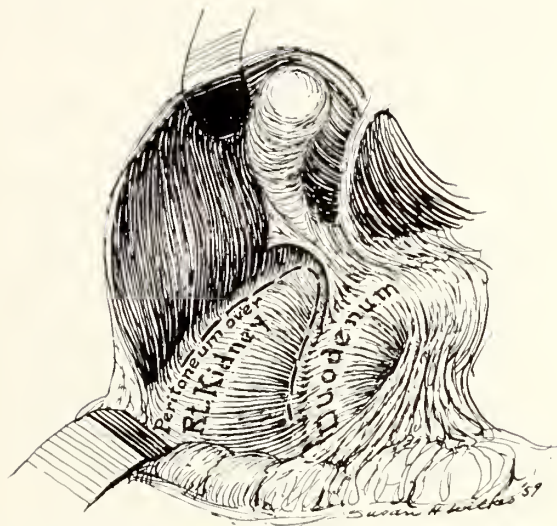


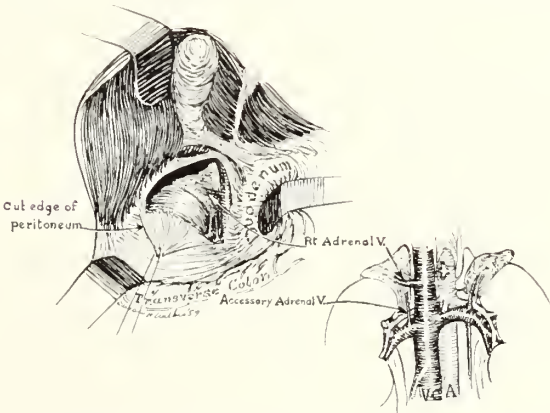
FIG. 5. The incision in the posterior peritoneum is indicated.

side, the securing of the vein is the most important step in the procedure. On either side the adrenal arteries can be ligated as they are isolated and bleeding is seldom troublesome even if one of the arteries is severed unintentionally.

Results

In this small group of patients those with adenomas of the adrenal cortex received a spectacular result from the removal of the adenoma. This is true in other reports on this condition. The one exception in our series is E.W., a patient in whom the pre-operative steroid studies indicated hyperplasia rather than neoplasm. It is thought that the small adenoma found in this patient was not responsible for her condition, but was only an incidental finding in a patient with hyperplasia of the adrenal glands. The postoperative steroid studies indicate this patient still had adrenal cortical hyperfunction. She subsequently responded to radiation of the pituitary.

The results obtained on the patients in whom the diagnosis of bilateral adrenal hyperplasia has been established are shown in table 4. In this series of patients, neither radiation nor unilateral adrenalectomy nor a combination of these two forms of therapy has produced uniformly good results. The 2 patients whose results are classed as excellent have lost the habitus of Cushing's Syndrome, their blood pressure is normal, their libido and energy are good. They are maintained on 10 mg. of hydrocortisone 3 times daily and 0.1 mg. of fludrocortisone daily, and are supplied with a card describing their condition and the recommended care to be taken in case of accident or serious illness. In addition, they have been instructed to carry an ampule of Solu-Cortef with them at all times. One patient



in whom one adrenal was removed, followed by radiation to the pituitary, has returned to normal weight and body habitus. His energy and libido are normal but he remains hypertensive.

R.C.J. was operated upon with the intention of performing a bilateral adrenalectomy, but during the removal of the second (right) gland technical difficulties were en-

Table 4

TYPE OF THERAPY AND RESULTS IN BILATERAL HYPERPLASIA (11 PATIENTS)						
Patient	Primary	Result	Secondary	Result	Tertiary	Result
HDB	L. Adrenal*	failure	radiation	failure	R. Adrenal*	excellent
RCJ	L. Adrenal*	failure	radiation	failure		
RNB	R. subtotal					
	L. Adrenal*		radiation	good except B. P.		
CAW	radiation	failure	Bilateral Adrenal*	excellent		
MP	Bilateral Adrenal*	died				
EW	L. Adrenal*	failure	radiation	good		
FE	R. Adrenal*	failure	radiation	failure	L. Adrenal*	excellent
	*Total excision					



countered and it is surmised from recent steroid studies that a portion of the right gland remains and has undergone hypertrophy. The patient remains unchanged in appearance or symptoms and at present is being considered for hypophysectomy, because of the danger anticipated in re-approaching the right adrenal gland.

### Discussion

There is widespread agreement on the treatment for neoplasms of the adrenal cortex, and the results obtained from the removal of benign tumors of the adrenal cortex is gratifying. No such agreement exists regarding the treatment of patients with bilateral adrenal hyperplasia. There has been much hesitation on the part of surgeons to remove both adrenal glands in their entirety. However, advancing knowledge in endocrinology and rapidly developing new steroids for administration are making this procedure less hazardous and the maintenance of these patients more of a science and less of an art.

The fact that many of the patients, in whom all but 10% of one adrenal has been removed, are either without remission of their disease or have to be maintained on steroids in amounts equal to those necessary in totally adrenalectomized patients leads us to believe that, at the present time, we are not able to gauge the narrow margin of difference between total destruction of the adrenal gland and leaving too much tissue. Therefore it would appear if bilateral adrenal hyperplasia is to be treated surgically, bilateral total adrenalectomy offers the patient the best chance for an approach to a normal life.

The work of Liddle<sup>11</sup> suggests that the preoperative differentiation of adrenal hyperplasia from neoplasm can now be made with a fair degree of certainty. In patients with adrenal hyperplasia, pituitary irradiation, if properly administered, is successful in approximately one-third of patients. In the face of failure of cobalt therapy, however, the evidence seems to justify total

bilateral adrenalectomy in patients with bilateral adrenal hyperplasia.

### Summary

Eleven patients with Cushing's Syndrome are presented; 5 of these patients had neoplasms of the adrenal cortex and 6 bilateral adrenal hyperplasia. In 9 of these patients, the method of Liddle<sup>11</sup> was used to differentiate neoplasm from hyperplasia and proved to be accurate in 8 of the cases. The exception was a patient who had a small adenoma in addition to having bilateral hyperplasia. Medical management that has been used successfully after removal of adenomas and after bilateral adrenalectomy is given.

### References

1. Plotz, C. M., Knowlton, A. I., and Ragland, C.: The Natural History of Cushing's Syndrome, *Am. J. Med.* 13:597, 1952.
2. Cushing, H.: The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations ("Pituitary Basophilism"), *Bull. Johns Hopkins Hosp.* 50:137, 1932.
3. Priestley, J. T., Sprague, R. G., Walters, W., Salassa, R. M.: Subtotal Adrenalectomy for Cushing's Syndrome, *Ann. Surg.* 134:464, 1951.
4. Sprague, R. G., Kvale, W. F., and Priestley, J. T.: Management of Certain Hyperfunctioning Lesions of the Adrenal Cortex and Medulla, *J.A.M.A.*, 151:629, 1953.
5. Cope, O., and Raker, J. W.: *New England J. Med.* 253:119, 1955.
6. Montgomery, D. A. A., and Welbourn, R. B.: Cushing's Syndrome: A Report of Thirteen Cases and Their Surgical Treatment, *Brit. J. Surg.* 47:137, 1957.
7. Heinbecker, P., O'Neal, L. W., and Ackerman, L. W.: Functioning and Nonfunctioning Adrenal Cortical Tumors, *Surg. Gynec. & Obst.* 105:21, 1957.
8. Silber, R. H. and Porter, C. C.: The Determination of 17, 21-dihydroxy-20 Ketosteroids in Urine and Plasma, *J. Biol. Chem.* 210:923, 1954.
9. Callow, N. H.; Callow, R. K., and Emmens, C. W.: Colorimetric Determination of Substances Containing Grouping-CH<sub>2</sub> CO- in urine extracts as indications of androgen content, *Biochem. J.* 32:1312, 1938.
10. Hardy, J. D., and Turner, M. D.: Hydrocortisone Secretion in Man: Studies of Adrenal Vein Blood, *Surgery* 42:194, 1951.
11. Liddle, Grant, W.: *Progress in Clinical Endocrinology*, (Edited by Astwood). New York. Grune and Stratton, 1959.

The author calls attention to the possibilities of accommodative paralysis and accommodative spasm.

## ABNORMAL ACCOMMODATION\*

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Three case reports of patients under 30 years of age who show different types of abnormal accommodation are to be presented. It is frequently stressed to students that one of the most important measurements to be obtained in the course of a routine refraction examination is that of accommodation. The truth of this has been demonstrated repeatedly, not only in the few instances in which abnormal accommodation is elicited, but in evaluating the proper prescription for glasses.

*Case 1.* Mrs. N. P., a 29 year old married woman, complained of losing her near vision during the past 5 years. She volunteered the information that she had three sisters who were forced to have bifocals by the age of 30 years. The patient had a 5 year old daughter who had megacolon, a disturbance in the ganglionic cells of the parasympathetic innervation of the intestinal tract. A review of the systems in the history was normal.

Examination of the eyes revealed the central vision in each eye to be 20/25. The external eye, including pupillary reactions, the extraocular muscle balance, intraocular pressure, the slit lamp, ophthalmoscopic and visual field examinations (2/1000) were normal. The accommodation was measured and found to be 2.25 diopters in each eye. A refraction without and with cycloplegia, using 5% homatropine, showed in the right eye — 0.50 sphere, + 1.00 cylinder, axis 100; in the left eye — 0.50 sphere, + 0.75 cylinder, axis 75. A + 1.25 add. brought the near point to 28 cm. in each eye.

The patient was referred for physical examination. Specific information regarding diabetes, disease of the central nervous system and past inflammatory disease was asked for. This failed to reveal any systemic or other neurologic abnormality. A diagnosis of *accommodative paralysis*, possibly of familial origin was made.

*Case 2.* Mr. J. R., 25 years old, was sent to the clinic complaining of poor distant vision. Six months previously he had suffered a severe head injury resulting in a right hemiplegia. He also had two skull defects requiring the use of tantalum plates. His blurred distant vision was noticed after the injury. He was unemployed and did not use his eyes for excessive close work.

Examination revealed a vision of 20/200 in each eye for distance, and 14/14, or Jaeger I, for near. His near point was 9 cm., equivalent to 11 diopters of accommodation. External eyes, pupillary reactions, extraocular muscles, intraocular pressure, slit lamp appearance of the lens, ophthalmoscopic and visual field determinations were all normal. With a — 2.00 lens in each eye the vision was improved to 20/20. Homatropine cycloplegic refraction was performed. The patient remarked that his ability to see had greatly improved, and when the error of focus was determined, it was found that he required a + 0.25 sphere in each eye. No prescription was given at that time, but he was recalled one week later when it was found that his distant vision was again reduced to 20/200. He was given a solution of 1% homatropine to be used three times daily. This was continued for two weeks at which time he was re-examined. It was found that the 20/20 vision had persisted. His accommodation was greatly impaired. The cycloplegic was discontinued, and in one week his acuity for distance had again regressed. A prescription for glasses of — 1.50 spheres was ordered. This corrected his vision to 20/40. It was hoped that his accommodation would relax. After 6 weeks it was rechecked, but no improvement was found. The lenses were changed to — 1.00 spheres which improved his vision to only 20/60. After 3 months there had been no improvement in distant vision or reduction in excessive accommodation. A diagnosis of probable organic *spasm of accommodation* was made, possibly on a basis of head injury with irritation of the brain stem.

*Case 3.* Miss M. K., 15 years old, the eldest of five children, complained of blurred distance and near vision for a period of one day. Five days previously she had suffered a severe headache which gradually subsided over the next three days. She had no other recent illnesses.

Examination revealed vision of 20/70 in each eye and accommodation of 2.5 diopters (40 cm. near point). The pupils were widely dilated and failed to react to light or convergence. The slit lamp, ophthalmoscopic and visual field examinations were normal. The extraocular rotations were normal. The refractive error in the right eye was — 1.00 sphere, — 0.25 cylinder, axis 180; in the left eye — 0.75 sphere, — 0.25 cylinder, axis 180. This corrected the vision to 20/25 + 3. The near vision required a + 2.00 add. to bring the near point to 20 cm.

The patient and mother vigorously denied the use of any cycloplegic drugs. The mother stated privately that her daughter was a very normal, cooperative, intelligent child who aided her greatly

\*Read at the meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, April 14, 1959, Memphis, Tenn.



with the smaller children and who did good work at school. She felt she had no reason to suspect her of intentionally using any medication. She was referred to her family physician and the situation discussed with him. He could find nothing on physical examination and referred her to a neurologist. He, in turn, reported nothing except the ophthalmoplegia. He advised conservative observation. The patient was re-examined at intervals over a period of 4 months.

The mother was urged to try to observe her daughter closely and to search for some explanation. The subterfuge was finally discovered when she found a small tube of ointment hidden in a pair of rolled up silk stockings in the back of the child's bureau drawer. What happened between mother and daughter after the denouement was not divulged. The mother stated that she, herself, was probably to blame as she had felt the necessity of giving most of her attention to the younger children and had expected adult behavior from the 15 year old daughter. The *paralysis of accommodation* was cured.

### Discussion

After having been in practice for a number of years, the ophthalmologist who performs refractions develops a good working knowledge of the basic physiology of optics. Unless he has a retentive memory, he may forget some of the finer points which are used less often.

Accommodation may be classified, in respect to the stimuli which cause it to occur, into the more important functional reflexes and the less important associative reflexes. (Table 1.) There are two functional reflexes, (1) that due to the innate tonus of the ciliary muscle, resulting in the tonic accommodation, and (2) that due to an indistinct retinal image, resulting in retinal accommodation. There are two associative reflexes, (1) that due to convergence and thus resulting in convergence accommodation, and (2) that due to an awareness of the nearness of an object. This has been termed proximal accommodation.

The innervation for tonic accommodation is supplied by low grade impulses from the subcortical tonic centers. They remain fairly constant, but do vary when the general tonus of the body muscles is increased or decreased. It is not uncommon for an individual who has been sick with a prolonged or otherwise debilitating illness to experience asthenopia. This may disappear upon his recovery.

The normal retinal accommodation reflex

requires about one half second for completion. The mechanism is not entirely understood. How does the retina differentiate between the blurred circle images of similar size which occur from both divergent and convergent rays? It is not just by chance that in the former the accommodation is relaxed, and in the latter is increased. Adler supports Fincham's conclusion that the stimulus for retinal accommodation depends partly on chromatic aberration, but more importantly on small scanning motions of the eyes. Adler states, "As the eye makes small movements, the limiting rays of the blur circles acquire different degrees of obliquity at the retina. In the hypermetropic condition, that is, when the image is focused behind the retina, the rays nearer the center of the fovea become more normal to the retina, while in the myopic condition, i.e., the focus in front of the retina, the rays farther from the center of the fovea become more normal. Hence, the difference of brightness stimulus between the two sides of the area is produced by the Stiles-Crawford effect and the brain can thereby detect whether the light at the retina is convergent or divergent." One must remember that the retina can only differentiate colors and differentiate amounts of illumination through the cones and rods.

In regard to the first case report, of the woman with the reduction of accommodation, the diagnosis was made after an attempt to eliminate the various groups of causes. Duke-Elder summarizes them as follows:

1. Congenital defects.
2. Paralysis by cycloplegic drugs.
3. Paralysis of infective origin:
  - a) Acute and subacute infections of the central nervous system—polio, etc.
  - b) Neuritic infections—herpes zoster.
  - c) Chronic infections—syphilis, tuberculosis.
  - d) Toxic conditions—diphtheria.
4. Paralysis associated with degenerative conditions affecting the brain stem—hereditary ataxias.
5. Paralysis occurring in metabolic toxemias—diabetes.
6. Paralysis due to exogenous poisons—lead, ergot, injected arsenicals, snake venom, etc.
7. Paralysis due to involvement of the III nerve trunk in any part of its course—neoplasms, hemorrhages, aneurisms, etc.
8. Paralysis due to diseases of the eye affecting the ciliary muscle—glaucoma and cyclitis.



9. Paralysis due to trauma-concussion.
10. Paralysis due to hysteria.

To simplify the differential diagnosis, one can keep in mind local causes and systematic causes, those which affect both eyes or one eye, those which do or do not affect the pupil size, and those which may appear in other members of the family. (Table 2.) All the aids of examination should be used, including gross inspection, slit lamp microscopy, ophthalmoscopy and tonometry. One should make sure that the fault cannot be attributed to lens abnormality. Finally, one should obtain adequate consultation from internist and possibly neurologist if the cause of this accommodative paralysis is not obvious from the ophthalmic evaluation.

The second young patient with the *spasm of accommodation* also provided a problem both in differential diagnosis and in treatment. The causes of accommodative spasm are divided into two groups. The first is *functional spasm*. This is common to all refractionists and seen in individuals who (1) perform work requiring prolonged accommodative effort, (2) those who may have extraocular muscular imbalance or (3) optical errors, such as astigmatism and anisometropia, and lastly (4) in those who have physical and mental situations often close to neurosis.

The second group are those with *organic accommodative spasm*. Those are less common than the functional group.

1. Drug spasm—miotics, morphine, digitalis, sulfonamides, arsenicals, vitamin B, etc.
2. Irritative lesions of brain stem and oculomotor trunk—encephalitis, tabes, orbital cellulitis, etc.
3. Reflex irritation—trigeminal neuralgia.
4. Intraocular inflammation irritating the ciliary body.
5. Toxic states—jaundice, influenza.
6. Cyclic oculomotor spasm.
7. Trauma to ciliary body.

The diagnosis in the patient described previously is not without question. It was felt that he probably had some irritative lesion of the brain stem because the spasm failed to be relieved at all by measures usually helpful in functional spasm.

The third case report was intended to show how an emotionally disturbed child can cause her physicians to become likewise. At first it appeared obvious that the internal ophthalmoplegia was self-inflicted, but as weeks passed and denials from patient and parents were repeated, the problem became a little tense for the ophthalmologist, and the ground on which he stood was less firm. It was with great relief that the tiny, shiny tube was found.

In summary, these case reports have been presented to provide: (1) a review of the causes of accommodative paralysis and accommodative spasm; (2) a review of the stimuli initiating the accommodative reflex responses; and (3) examples of refractive problems in which a medically trained refractionist has the best chance of proper diagnosis and treatment.

Table 1

ACCOMMODATION  
CLASSIFIED AS TO INITIATING STIMULI

1. Functional reflexes
  - a. Tonic accommodation—innate ciliary tonus
  - b. Retinal accommodation—due to blurred retinal images
2. Associative reflexes
  - a. Convergence accommodation
  - b. Proximal accommodation—awareness of nearness of an object

Table 2

AIDS IN DIFFERENTIAL DIAGNOSIS

1. Local versus systemic causes
2. Causes affecting one eye or both eyes
3. Causes affecting or not affecting pupil size
4. History of familial incidences

Injury of the spleen is of particular importance in those instances in which blunt trauma was the agent, particularly if other more evident injuries have attracted attention. Insidious, delayed or secondary bleeding may be recognized only if one has the proper suspicion.

## INJURIES OF THE SPLEEN\*

DANA WILSON NANCE, M.D., Oak Ridge, Tenn.

The incidence of injuries of the spleen are increasing as our road building programs fail to keep pace with the increased horsepower of our motor vehicles. These injuries are insidious since they are seldom unassociated with other injuries which may be more readily recognized, and particularly since the hemorrhage which ensues and is responsible for the shock is hidden. Injuries of the spleen are of two general types: (1) those due to penetrating wounds, such as stab wounds and gunshot wounds, and (2) those due to blunt trauma such as in falls and kinetic blows.

(1) *Penetrating Wounds.* These cases rarely pose much of a diagnostic problem since the suspicion of injury is apparent from the location of the wounds, and the only delay before definitive laparotomy is occasioned by efforts to get the patient in suitable condition for operation. When rigorous blood replacement therapy fails to raise the blood pressure to ideal levels, laparotomy should not be long delayed. As a rule of thumb we have found a systolic pressure of 80 and rising a satisfactory indication for surgical intervention.

(2) *Blunt Trauma.* These injuries are much more difficult to diagnose and are much more likely to be associated with other injuries, particularly head injuries. Lacerations of the splenic capsule with massive hemorrhage can occur with little or no external evidence of injury. Only constant vigilance and a high index of suspicion will avoid tragic diagnostic oversights. This vigilance must be maintained over long periods if we are to recognize and treat cases of secondary hemorrhage which are the *bete noir* of these injuries. Blunt trauma to the spleen may cause rupture of the splenic

capsule with acute hemorrhage which may subside as the blood pressure falls and clotting temporarily ensues, only to start bleeding hours or days later when the blood pressure has risen or some physical exertion dislodges the clot. Delayed hemorrhage may also occur from tearing of the splenic pulp without laceration of the capsule at the time of injury, followed by bursting of the capsule later with acute hemorrhage.

### Symptoms and Signs

The symptoms and signs which lead one to suspect laceration of the spleen are:

1. Shock without visible evidence of hemorrhage,
2. Pain in the left upper abdomen and flank often referred to the left shoulder,
3. Left upper abdominal rigidity which may be board-like, and
4. Splinting of the left chest.

The diagnosis depends on any or all of these findings and can be confirmed by paracentesis of the left upper abdomen with a 14 gauge needle. When one obtains fresh blood by this procedure one can feel almost certain that either the spleen or the liver is lacerated. X-ray examination is of little help. If hemorrhage is massive there may be increased radiopacity in the left upper quadrant under the diaphragm. The one laboratory procedure which is of extreme importance is a hemoglobin and hematocrit determination upon admission. Not only will this give a clue as to the degree of acute hemorrhage if present, but it will serve as a baseline to aid us in making the diagnosis of secondary or delayed hemorrhage if it occurs hours or days later.

### Treatment

I do not believe there will be any disagreement with the statement that the treatment of rupture of the splenic capsule is

\*Read at the Annual Medical Seminar of the Vanderbilt Medical Association, May 29-30, 1959, Nashville, Tenn.

splenectomy with blood replacement therapy before and after operation if necessary. To my knowledge no one has ever devised a satisfactory method of suturing a laceration of the spleen which will assure its not bleeding again, and since one can apparently live in as good health without a spleen as with one, there should be no hesitation in removing a lacerated spleen. I have nothing new to offer in the way of operative technic except to emphasize the importance of as rapid control of the splenic pedicle as consistent with safety in cases in which bleeding is active.

The medicolegal aspects of splenectomy are interesting. Should the loss of a spleen as the result of an accident covered by liability insurance constitute just grounds for damages? We still do not know too much about the functions of the spleen. We do know that its functions are carried on by other systems in a fairly satisfactory way when the spleen is removed. Certainly the spleen is not a vestigial organ like the appendix or coccyx, which one might say are expendable. The good Lord put it there for some reason. Whether the life span of splenectomized individuals is reduced or not I do not know. Until this question is answered one cannot unequivocally state that the loss of a spleen is not a compensable injury.

#### Clinical Material

As will be seen in the tables there have been 38 splenectomies performed in the Oak Ridge Hospital in the past 10 years. Thirteen of these have been done for blood dyscrasias, largely thrombocytopenic purpura, congenital hemolytic anemia, and aplastic anemia. Twelve have been performed for rupture due to trauma. Nine have been incidental to resections of the gastrointestinal tract for malignant disease, and 4 have been for other indications, such as congenital cyst and splenomegaly. Of the traumatic cases 2 were for penetrating wounds and 10 as a result of blunt trauma. Of the cases of blunt trauma, 6 have been operated on after delayed or secondary hemorrhage. Three personal cases of this type will be described since they are of more interest to me and are illustrative of some of the difficulties encountered in splenic injuries.

*Case 1.* M. H., age 45, a housewife, was admitted to the Oak Ridge Hospital, April 27, 1956, at 7:00 p.m. with the following history. Five days previously she had been "playing" with her husband in bed. She pinched him and he kicked her in the left flank. The blow knocked her breath out, but she thought little of it. On the following morning she had severe upper abdominal pain with radiation into the left shoulder. This pain continued for the next 5 days but was much less severe. (She had no history of indigestion or symptoms suggestive of peptic ulcer.) About 5:00 p.m. on the day of admission she reached up to a shelf to get a plate, was seized with acute pain in the abdomen and collapsed on the floor. She was seen at home by a family physician who brought her to the hospital by ambulance in a state of severe shock which was treated by intravenous fluids and two units of blood. The impression on admission was massive hemorrhage from a peptic ulcer. Her admission hemoglobin was 5.6 and microhematocrit 18.

When seen in consultation 3 hours after admission, her blood pressure had risen to 124/80 but she was complaining of acute pain in the left upper abdomen with radiation to the left shoulder and appeared pale. The upper half of the abdomen was rigid and the lower half soft and slightly distended. Paracentesis in the left upper quadrant yielded fresh blood.

A laparotomy was done 4 hours after admission. The abdominal cavity contained about 3000 cc. of bright red blood. There was a 4 cm. long capsular laceration of the lower pole of the spleen and on the inferior surface a 3 cm. laceration. The entire diaphragmatic surface was distended by subcapsular hemorrhage. The left subdiaphragmatic space was filled with organizing clot. Splenectomy was done and the patient made an uneventful recovery.

*Comment.* This then is a case of traumatic rupture of the spleen by blunt trauma with massive secondary hemorrhage occurring 5 days after the initial trauma. It later came to light that this woman's husband was a sadist, so the original trauma was probably more severe than had been suspected in the history.

*Case 2.* D. D., a 5 year old boy, was admitted to the Oak Ridge Hospital, April 25, 1956, 10 minutes after having fallen about ten feet from a ladder. He was thought to have landed on his head. On admission he was stuporous but could be aroused and responded to questions but was disoriented. There was a contused abrasion over the left mastoid process, but no bleeding from the ears or nose. The deep and superficial reflexes were present and active. He was admitted as having a cerebral concussion and put on routine precautions for cases of head injury.

His admission hemoglobin was 10 Gm. On the following morning his sensorium was clear and he had no special complaints. He remained in bed. During the night of April 26, 36 hours after ad-



mission, he began complaining of abdominal pain, was nauseated and vomited several times. When seen in consultation the following morning he had acute tenderness and rigidity in the upper abdomen with referred pain to the left shoulder. His blood pressure was stable (at about 110 systolic). His hemoglobin was 7 Gm.

A diagnosis of ruptured spleen was made. At laparotomy the spleen, having a laceration in the capsule along the diaphragmatic surface across two-thirds of the circumference, was removed. There were about 500 to 1000 cc. of liquid blood in the peritoneal cavity. Sections of the spleen showed a large area of acute hemorrhage extending into the parenchyma in finger-like projections without evidence of organization.

*Comment.* The fall in the hemoglobin level without visible evidence of hemorrhage was largely responsible for this diagnosis. I believe this was an instance of secondary rupture of the capsule after hemorrhage in the pulp.

Case 3. D. R., a 51 year old housewife, was brought to the Oak Ridge Hospital on December 29, 1958, a few minutes after an automobile injury. She had been riding as a passenger in the front seat of an automobile whose brakes failed completely on coming down a steep hill and crashed into a rock-walled ditch to avoid hitting another car which was stopped at an intersection. The ambulance driver stated that she was "wrapped around" the gear shift lever of the car when he pulled her out. On arrival she was conscious but disoriented and apprehensive. She complained of pain over the midsternum, difficulty in breathing and pain in the right ankle which was the site of an obvious trimalleolar fracture dislocation with marked deformity.

Her blood pressure was 120/84 and her hemoglobin on admission was 12.2 Gm. X-ray studies confirmed the fracture of the ankle and showed a transverse fracture of the body of the sternum without displacement. No rib fractures were seen. The lungs were aerated. Three hours after admission open reduction and fixation of the fractured ankle with a Wood type screw in the medial malleolus was carried out under general anesthesia. Following this procedure she had a marked drop in blood pressure, but this returned to normal after an infusion.

For the next few days she did well but complained of left chest pain. On the seventh hospital day an x-ray film of the chest showed a moderate left hydrothorax with the fluid extending to the fourth rib anteriorly. That night she complained of much more left chest pain, was dyspneic and appeared pale. Her hemoglobin on January 7, 1959, was 6.6 Gm. Thoracentesis yielded a small amount of straw-colored fluid, and left upper paracentesis yielded bright red blood.

A diagnosis of delayed rupture of the spleen was made, and after administering two units of blood, she was operated on. The left upper quad-

rant was filled with an organizing blood clot which surrounded the spleen and plastered it to the under surface of the diaphragm. About 1000 cc. of fresh blood was mopped from the peritoneal cavity. There was a three and a half inch rent in the anterior splenic capsule which was bleeding actively. Splenectomy was done and the organizing thrombus removed from under the diaphragm. A large caliber needle then evacuated 500 cc. straw colored fluid from the left pleural cavity through the diaphragm. The patient received two more units of blood postoperatively, and the rest of her course was uneventful.

Table 1

#### SPLENECTOMIES OAK RIDGE HOSPITAL (1948-1958)

Blood dyscrasias (thrombocytopenic purpura, congenital hemolytic anemia, etc.)	13
Rupture due to trauma	12
Incidental to malignant diseases of G.I. tract	9
All others (congenital cyst, splenomegaly, etc.)	4
Total	38

Table 2

#### RUPTURE OF SPLEEN

Due to penetrating wound	2
Due to blunt trauma	10
Total	12

Table 3

#### SPLENECTOMIES FOR BLUNT TRAUMA

Operated on for acute hemorrhage shortly after primary injury	4
Operated on for secondary or delayed hemorrhage	6
Total	10

Table 4

#### SPLENECTOMIES FOR DELAYED OR SECONDARY HEMORRHAGE (6 CASES) TIME INTERVAL BETWEEN PRIMARY INJURY AND SECONDARY OR DELAYED HEMORRHAGE

Case 1	5 days
Case 2	36 hours
Case 3	8 days
Case 4	2 hours
Case 5	12 days
Case 6	15 days

*Comment.* This woman undoubtedly sustained a laceration of the spleen at the time of the accident and developed a large clot which controlled the hemorrhage temporarily. Nine days later she bled secondarily and only then was the splenic injury suspected. Her chest pain had been ascribed to the fracture of the sternum. One wonders whether the left pleural effusion was due to the large clot under the diaphragm.

#### Summary

1. Indications for 38 splenectomies in the Oak Ridge Hospital have been outlined.
2. Rupture of the spleen due to trauma

constituted the indications for splenectomy in about one-third of this small series.

3. Two thirds of the splenectomies for rupture due to blunt trauma were cases of delayed hemorrhage. Three such cases have been described.
4. The importance of paracentesis and an admission hemoglobin determination in all cases where splenic injury seems at all possible has been emphasized.
5. The medicolegal aspects of splenectomy have been alluded to without any definite conclusions.

## STAFF CONFERENCE

### Vanderbilt University School of Medicine\*

#### Anterior Myocardial Infarction Occurring During the Course of Operation for Aorto-Iliac Occlusive Disease

DR. JAMES W. HAYS: This is the first Vanderbilt Hospital admission of this 56 year old white male business executive (VUH #294428) who came in with the chief complaint of "circulatory trouble in the right leg."

*Present Illness:* Approximately 9 to 10 years prior to admission the patient noted that his right lower extremity would become tired after playing nine holes of golf. This persisted and gradually increased in severity until 10 months ago when the lower extremity would not only become tired after this exercise but also ache. Three to four months prior to admission, after walking one and a half blocks, the patient had claudication which was relieved by rest. A few weeks before admission, claudication was described not only as involving the lower extremity but also the thigh and right buttock. The patient has had slight decrease in libido but no impotence. There were no other complaints. Specifically there were no dyspnea, orthopnea, palpitation, anginal or chest pain. Six weeks prior to admission the patient consulted his local physician who found diminished pulsation in his right lower extremity and recommended further evaluation and therapy.

*Past History:* Cholecystectomy in 1949—uncomplicated; hemorrhoidectomy with benign polypectomy in 1957. Past history otherwise was not remarkable. The review of systems is within normal limits. He smokes one pack of cigarettes a day and has only minimal alcohol intake.

*Family History:* Father died at age 67 with a "stroke." Mother living, has diabetes mellitus requiring insulin. One sister living and well.

*Physical Examination:* Blood pressure 128/85, pulse 68, respiration 20. The patient was a well developed, well nourished, graying, intelligent, cooperative, white man in no acute distress. Pertinent physical findings were limited to the lower extremities, there being palpable femoral pulses bilaterally, the right somewhat less full than the left, but no pulses were palpable below the right femoral and diminished pulses were present below the left femoral. Both lower extremities were somewhat cool, the right being more so than the left. No trophic changes were noted.

*Special Studies:* Oscillometric—indicated diminished arterial flow in both lower extremities, more so on the right than on the left. Chest x-ray film was not remarkable. EKG, resting, was interpreted as within normal limits, and a double Master's test was negative. Other laboratory data

were found to be within normal limits except for a serum uric acid of 7.8 mg. and serum cholesterol of 280 mg. per 100 cc.

*Course in Hospital:* After the initial history, physical examination and laboratory data were evaluated, a lumbar aortogram was attempted under local anesthesia which proved to be unsatisfactory due to some extravasation of the dye. At the time of the aortogram the patient had what was interpreted as a vasovagal response, becoming somewhat cyanotic, cold, clammy, and complaining of severe abdominal discomfort. This was quite transient and a few minutes thereafter the patient's condition was stabilized.

Two days later he was taken to the operating room where the right femoral artery was explored and found to contain a few plaques posteriorly but, in general, the vessel appeared to be in rather good condition. An operative arteriogram was done which indicated that the right superficial femoral vessel was patent distally and contained minimal plaques. An abdominal incision was made. The aortic bifurcation was explored and found to contain extensive atheroma involving the terminal aorta and bifurcation, with approximately 90% occlusion of the right common iliac and a 50% block of the left common iliac. The abdominal aorta was cross-clamped, a longitudinal aortic incision was made and thrombendarterectomy carried out, extending from shortly above the inferior mesenteric artery to the bifurcation of the common iliac and the proximal hypogastric artery on the right. The left common iliac was cleaned out just at its origin as the lumen distal to this point seemed to be quite adequate. An onlay woven Teflon graft was then inserted from the aorta to the right common femoral artery. Up until this time the patient had tolerated anesthesia well with no evidence of any abnormality and the blood pressure and pulse had remained stable.

At this time, before unclamping the aorta, the patient suddenly went into profound shock, became very cyanotic and the blood pressure could not be obtained using the cuff. An EKG monitor was being used all this time; the only abnormality observed was a shift in the pacemaker, or total absence of the P-wave with an A-V nodal rhythm. In spite of the use of 1500 cc. of whole blood infused rapidly, and large concentrations of norepinephrine by intravenous drip, the patient's blood pressure remained unobtainable. It seemed clear that the problem was acute myocardial insufficiency, most likely due to myocardial infarction. The patient was given cedilanid intravenously at 15 minute intervals, receiving a total dosage of 1.2 mg. He also received repeatedly calcium chloride intravenously in a total dosage of 1.0 Gm. After one and a half hours of profound shock with these supportive measures and completion of digitalization, the patient's blood pressure rose to approximately 90 systolic. The aorta was then gradually unclamped (it had then been clamped for almost 3 hours) and patient's

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blood pressure continued to rise to the range of 140/80. The pulse at this time was approximately 130 to 140. During the next 30 minutes the blood pressure settled back to 110-120/60-70, which was near the pre-anesthetic control level. After hemostasis was obtained, good pulsatile flow was observed in both femoral vessels and the operative procedure was terminated. After completion of the abdominal closure, however, it was noted that the left femoral pulse was no longer palpable. Accordingly, the left femoral artery was re-explored under local anesthesia and a small thrombus was suctioned from the vessel with restoration of good pulsatile flow.

The postoperative EKG indicated that the patient had an anterior myocardial infarction; however, he continued to do well, although nor-epinephrine was used intermittently to maintain arterial pressure above 110 systolic for the first 24 hours. About 6 hours after operation the patient had good pulses in the lower extremities, bilaterally, including full posterior tibial pulses; he was reasonably alert and complained of no pain or discomfort in the chest and had no anxiety whatsoever. The morning after operation he was very alert, still had no complaints of chest pain and peripheral pulses continued to be strong. Nor-epinephrine was discontinued without difficulty and the blood pressure remained stable at approximately 120/80 with a pulse of 80. The patient's subsequent postoperative course has been benign. Today is his 6th postoperative day. The peripheral pulses remain strong, blood pressure and pulse remain stable, and he is sitting up three times per day without difficulty. He is now taking soft diet well and feeling fine.

DR. H. WILLIAM SCOTT, JR.: This patient is presented as an example of myocardial infarction occurring during the course of surgical operation. Due to the severity of the profound hypotensive response I think you will all agree that we are very lucky to be able to present him today to this conference. Fortunately, he has made a remarkably strong recovery from this catastrophe and is now doing very well indeed.

Myocardial infarction is rarely encountered during operation and is by no means common in the immediate postoperative period. This patient had no symptoms of coronary disease prior to operation. His preoperative resting EKG was interpreted as being within normal limits and a double Master's test was negative. During the operation anesthesia seemed to us to be very smooth. We had no technical difficulties in carrying out the aorto-iliac thrombendarterectomy and the aorto-femoral by-pass graft. There was certainly no

significant loss of blood—estimated loss was only 300 cc. Despite these considerations a nearly fatal myocardial infarction took place at operation. The pulse and blood pressure had been quite stable up to the acute hypotensive episode. We had really completed the arterial surgery and were ready to release the occluding clamps on the abdominal aorta and its branches when the pressure abruptly dropped to 40 mm./Hg. Obviously, we could not release the clamps and further reduce peripheral resistance with such a profound hypotension. For this reason we left the abdominal aorta cross-clamped for an additional hour and a half until the multiple resuscitative efforts had resulted in a return of arterial pressure toward normal when we eased the clamps off very slowly and fearfully.

Dr. Robbins, would you comment on this problem from the viewpoint of the anesthesiologist?

DR. BENJAMIN H. ROBBINS: I should like to make a plea at this time for the most conservative anesthetic agent and technic possible for a given operative procedure, regardless of its type. That is, that agent and technique which meet the following criteria or specifications: Anesthesia which is adequate for the surgeon and his operative needs, pleasant and satisfactory from the patient's point of view, and safe for the patient—this should permit the following: Adequate gaseous exchange, that is oxygen intake and carbon dioxide elimination, and adequate maintenance of blood pressure and cardiac output.

This last brings up the question of the effect of anesthetics on the cardiac output in man. At the present time there is no study on the effects of an anesthetic agent alone upon the cardiac output in man. In all the reports that have been made there have been drugs of various types, either the atropine group, the opiate group, or the barbiturate group, or combinations of these three given to the patient before the anesthetic was started, so that these studies do not accurately reflect the effect of the anesthetic agent alone upon the cardiac output.

This patient was known to have systematic arterial disease and might therefore be expected to have some coronary disease, although he had no signs or symptoms of

such in his history. The specific anesthetic procedure that was outlined for this individual, took into consideration each of the three specifications that were mentioned above. From the surgeon's point of view it was necessary to have the patient on an anesthetic regimen for two periods where electrical equipment might introduce hazards that are not ordinarily found in the operating room, that is the need for the x-ray for the arteriogram and at the time of using the actual cautery on the prosthesis; second, pleasant from the patient's point of view—this individual had expressed a preference to be put to sleep with intravenous thiopental; and third, safety for the patient. After the surgeon's needs were supplied and the desire of the patient complied with, he was given a mixture of cyclopropane and oxygen for the main portion of the anesthetic and operative procedure. This we felt gave the patient the best anesthetic program that could be developed for these specific needs. Therefore, this individual was given 0.2 Gm. of secobarbital sodium and 0.4 mg. of scopolamine at 7:00 o'clock on the morning of operation. At 8:15, after the control blood pressure had been established and the electrocardiographic pattern observed on the cardioscope, he was given 0.3 Gm. of pentothal intravenously and 40 mg. of anectine. After the full onset of action on anectine, an endotracheal tube was put in place and the patient was then changed to a mixture of cyclopropane and oxygen for the maintenance of anesthesia, with the exception of the two periods mentioned earlier, that is the time the x-ray machine was being used and at the time the cautery was used to prepare prosthesis. Two periods of hiccough were observed, one at 11:25 and another at 11:35, for which anectine intravenously was administered to control the spasm of the diaphragm.

At 11:45 the blood pressure fell precipitously to a level that was unattainable by the use of the blood pressure cuff and the aneroid manometer. The administration of cyclopropane at this time was stopped and was not reinstituted during the operative procedure, the patient receiving only oxygen by intermittent positive pressure upon the bag. Because of extreme hypotension and cyanosis L-nor-epinephrine levophed)

and whole blood were given in quite large amounts during the next 35 minutes as palliative procedures. These were of little avail and after a clinical diagnosis of myocardial infarction had been made, cedilanid, 0.4 mg., was given intravenously at 12:20, again at 12:30, and 0.2 mg. given at 12:50, with a slowly administered intravenous dose of calcium chloride of 0.5 gm. at 12:45 to 12:50 which was repeated again at 1:00. At this time the pressure was recorded at 90/50 with the heart rate of 135. The clamp across the aorta was released at the time the pressure reached 90/50 and in the next ten to fifteen minutes the pressure rapidly rose to 140/80. The only indication of possible excessive medication with the digitalis body and calcium chloride occurred about ten minutes following the last dose of calcium chloride at which time there were observed six or eight premature ventricular extrasystoles over a five or six minute period. During the whole period of hypotension and also for some time following the return to approximately normal pressure, the heart rate was maintained relatively high at 135-150 per minute. Because of this, at 3:00, 0.2 mg. more of cedilanid was administered and the rate soon fell to a range of 110-104 per minute. From the point of view of the anesthesiologist, one of the favorable signs that was observed throughout this period of hypotension and marked cyanosis was that the pupil remained small and reacted briskly to light.

We feel that this case was managed satisfactorily from the anesthesiological point of view and that it is one of great teaching value as it shows, first, the futility of therapy without the correct diagnosis, as neither blood nor nor-epinephrine was of value in this individual whereas specific therapy, that is digitalis bodies and calcium chloride was effective in restoring satisfactory cardiac function; and two, that the simple monitoring of the heart with an oscilloscope, using one lead lead two), does not necessarily give one all the data needed. If an electrocardiographic study using the standard and the precordial leads had been available during operation, specific therapy (digitalis bodies) could have been given thirty-five to forty minutes earlier than it was. Fortunately, the delay in specific



therapy caused no obvious permanent damage to the patient.

The frequency of diagnosed myocardial infarctions during anesthesia is very small: Briggs, Sheldon, and Beecher<sup>1</sup> report that during 101,000 anesthetics given at Massachusetts General Hospital from 1925 through 1954, this disturbance was diagnosed only nine times, and these were at autopsy following cardiac arrest on the table. So we are indeed very fortunate in this individual in that correct diagnosis of myocardial infarction had been made and specific therapy instituted before a complete electrocardiographic study was made; and also because of the favorable outcome.

DR. SCOTT: Thank you, Dr. Robbins. Dr. Grossman, as this patient's internist, would you comment on his problem?

DR. LAURENCE A. GROSSMAN: It is fortunate that myocardial infarction is not common during surgical procedures. It is indeed a rarity. Yet often during operations there is a fall in blood pressure and a concomitant slowing of the circulation. These factors, plus excessive blood loss and emotional stress, are usually considered precipitating causes. Actually, myocardial infarctions occur not infrequently in patients in shock as a result of bleeding ulcer.

The original electrocardiogram was interpreted as normal and after a double Master's exercise test there were no changes of coronary insufficiency. However, the resting record actually showed a nodal rhythm with a block (inverted P-waves in lead II and III with a P-R interval of 0.15 seconds). The P-R interval of 0.15 seconds with a nodal rhythm indicates that some block of the nodal impulse is taking place, either in forward or retrograde conduction depending on the actual site in the AV node of the pacemaker. Such a finding is almost pathognomonic of coronary disease in a man 56 years of age.

An interesting study was recorded in 1955 by Etsten and Proger<sup>2</sup> in which they found the overall postoperative mortality in patients with clinically evident coronary heart disease identical to the mortality in the group with only abnormal electrocardio-

grams. Coronary disease in the form of atherosclerosis exists in 50% of men between the age of 45 and 50 in a much higher percentage beyond the 50 years of age according to pathological studies.<sup>3</sup> In our patient the elevation of the serum uric acid (7.8 mg.%) suggests a metabolic disorder commonly associated with premature and widespread atherosclerosis—namely, gout.

I find it difficult to be in complete agreement with Dr. Robbins that the levophed was totally valueless in controlling the shock immediately following the myocardial infarction. Undoubtedly, cedilanid and calcium chloride were of benefit. The combination of medications may well have been effective both in increasing cardiac output and in raising the peripheral resistance.

In investigating the incidence of myocardial infarctions during surgery it is necessary to scrutinize all instances of cardiac arrest. In a large series collected from 10 university hospitals the number of deaths during anesthesia was over five times as great when muscle relaxants were used as when they were not used.<sup>4</sup> Curare was one of the preparations employed at that time. The use of anectine, the drug administered here, is supposedly not accompanied by such reactions. Nevertheless, the temporal relationship to the hypotension is such that it must be considered as a possible predisposing factor.

Finally, the importance and value of a preoperative electrocardiogram with correct interpretation is illustrated in this patient.

#### References

1. Briggs, B. D., Sheldon, D. B., and Beecher, H. K.: Cardiac Arrest: Study of 30-Year Period of Operating Room Deaths at Massachusetts General Hospital, 1925-1954, *J.A.M.A.* 160:1439, 1956.
2. Etsten, B., and Proger, S.: Operative Risks in Patients with Coronary Heart Disease, *J.A.M.A.* 159:845, 1955.
3. Schlesinger, M. J., and Zoll, P. M.: Incidence and Localization of Coronary Artery Occlusions, *Arch. Path.* 32:178, 1941.
4. Beecher, H. K., and Todd, D. P.: A Study of the Deaths Associated with Anesthesia and Surgery Based on a Study of 599,548 Anesthetics in 10 Institutions, 1948-1952, Inclusive, *Ann. Surg.* 140:2, 1954.



## President's Page



HARMON L. MONROE

At the conclusion of the Association's annual meeting in April, a new year and many new projects have gotten underway. The dynamic growth of the Association is apparent and the prospect for even more significant growth in the future seems certain.

Our TSMA membership has reached approximately 2800. But, on the basis of predicted growth, the membership may well reach 3400 to 3500 physicians by 1965.

Many far reaching problems in the practice of medicine, due to increasing population in Tennessee, the growth of industrial development and the increasing number of physicians, will present new challenges to medicine.

The Association's expanding responsibilities have necessitated the enlarging of the headquarters office and the employment of additional personnel.

A variety of figures lend further support to the growth story of our Association. Our income and expenses have increased. New committees have been formed, many of which will require a great deal of activity to carry out their duties. In such areas as physician placement, legislative action, insurance programs, relations with other groups, journal advertising revenue, annual session activities and projects in the field of the aging, growth and improvement are evident.

The Tennessee State Medical Association is becoming one of the larger and more influential professional organizations in this State. TSMA cannot stand still, it can neither rest on its laurels, expect its mistakes to go unnoticed, nor allow itself to drift into aimless organizational wanderings. TSMA is now the seventeenth largest state medical association in our now fifty states of the union.

Most important, if the Association is going to continue to grow, as surely it will, it must grow with direction. As years go by, the Association's financial structure must go hand in hand with existing or contemplated services. The legislative program and the quality of health services to Tennessee citizens must be of constant interest to all doctors.

We must urge the "best brains" possible among Tennessee doctors to work toward constantly improving the type of medical care rendered to our citizens and at the same time to preserve the freedom of the practice of medicine as we know and believe it to be under our free enterprise system. We must not mis-read the road signs, but take every precaution to follow the right road so that the Tennessee State Medical Association will follow a wisely chartered course.

Every effort should be made by all TSMA members to work for the passage of HR-10 (Keogh-Simpson Bill) adopted by the National House of Representatives on March 16 and now before the Senate Finance Committee. Last year, in the previous Congress, the Senate declined to take action claiming it came to them too late for adequate study. Let's not let this happen again! Contact your Senators (Kefauver and Gore) and urge them to give their support to HR-10 in the Senate.

The magnitude of work and the serious consideration given to our problems by the American Medical Association's House of Delegates is something in which every doctor should take pride. The seriousness with which every delegate tackles the tremendous amount of work presented, again reveals the enormous job faced by organized medicine.

*H. L. Monroe, M.D.*

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JULY, 1959

## EDITORIAL

### TOBACCO HYPOGLYCEMIA

Symptomatic hypoglycemia as a consequence of tobacco smoking is ordinarily an unusual clinical experience. Perhaps if one is aware of this situation, it actually may not be so unusual. Berry<sup>1</sup> recently reported his experience with twenty-four cases of tobacco hypoglycemia. In this group twenty-two were men. All smoked at least one package of cigarettes, or its equivalent, each day. The symptoms of hypoglycemia in the order of frequency of occurrence were: nervousness, dizziness, fatigue, "blind staggers," headache, fainting, and cough. In association with these symptoms the blood sugar was demonstrated to be 55 mg. per 100 cc. or less (the lowest was 33 mg). In all an immediate prompt relief followed the administration of glucose. Complete and permanent relief of the recurrence of these

symptoms was found following the discontinuance of smoking.

Spontaneous hypoglycemia is ordinarily classified from the standpoint of etiology as functional, hepatic, or pancreatic. Tobacco hypoglycemia could not be easily categorized. Functional hypoglycemia is a disorder of women, tobacco hypoglycemia is a disorder seen usually in men. Although many of Berry's patients drank, none had evidence of frank liver disease.

In most patients with hypoglycemia there is found at the time of surgical investigation not an adenoma, but an hypertrophy of the islets of Langerhans. The suggestion is made that this hypertrophy may be due to tobacco. With this in mind, Berry suggests that, unless an adenoma is suspected very strongly, before surgery is undertaken it would be well to try the effect of a no-smoking regimen. This idea is an appealing one.

The suggestion can be advanced that those persons who are able to quit smoking, are individuals who alter their personalities sufficiently to influence any functional hypoglycemia, quite apart from a hypoglycemia necessarily related to tobacco.

The effects of nicotine in causing nausea and vomiting in the uninitiated are remembered by all who smoked in secrecy in adolescence, or among the more hardy, who even attempted to learn to chew tobacco. However, the hypoglycemic symptoms seem to fit into a different mechanism.

Although coronary artery disease and pulmonary carcinoma are speculative results of smoking and usually not susceptible to cure, tobacco hypoglycemia seems to be a condition justifiably acceptable even though the evidence is primarily circumstantial. In addition, it is a condition that is cured when the use of tobacco is stopped. This is a clinical entity to be remembered in dealing with a high strung, tense, dizzy, exhausted "chain-smoker."

A. W.



### LOOKING FOR A PROJECT FOR A PUBLIC SERVICE COMMITTEE?

We have heard much of the premium put on science in education in Soviet Russia. Because of this publicity and emphasis both

1. Maxwell G. Berry: Tobacco Hypoglycemia. Ann. Int. Med. 50:1149, 1959.

governmental and private, educators and others have done some soul-searching concerning our secondary schools and their curriculum content. In many instances this has apparently turned out to be a pretty sorry picture. Graduation from high school has been possible with numerous hours of various types of "crip courses" dealing with human relations, home making, social courses and the like, for both boys and girls. This does not take into account the more difficult matter to document—a laxity in school discipline and making even courses in science "easy," with the result that the student entering college has not learned how to study. (Anyone sitting on an Admissions Committee of a medical school gets some inkling of this among college students who represent the "cream of the crop.")

With all deference due to athletic prowess, the high school student having a good scholastic record receives no recognition unless he be the class valedictorian. In fact, there is good reason to believe that some high school students of ability, in their years of immaturity, do not give free rein to their scholastic interests and abilities because, in the "herd psychology" of today, they may be classified as "grinds" or "book-worms" by their classmates, something to be avoided.

Your Editor found a booth in the Section on Scientific Exhibits at the A.M.A. meeting in Atlantic City, which was of interest on this subject. It was publicizing a newly incorporated nonprofit organization—the Society for Academic Achievement in Secondary Schools. \* (The High School Counterpart of Phi Beta Kappa). This began as an activity of the Adams County (Illinois) Medical Society and the Kiwanis Club of Quincy (Ill.), and by this year's high school graduation date included 13 high schools for recognition. It appears the Society is an outgrowth of the Quincy Major Learning Program which is "dedicated to the guidance and motivation of the superior and talented students in the high schools of Quincy and Adams County, Illinois, to seek a college education."

It is said that only half of our brightest high school students go to college. One reason may be that, as Dr. Conant, Presi-

dent Emeritus of Harvard, found in his study of American high schools, "the academically talented student, as a rule, is not sufficiently challenged, does not work hard enough, and his program of academic subjects is not of sufficient range."

The newly formed Society claims it is different from other high school honor societies in that honors do not go necessarily to those with the best total grade average. The new Society awards are based on a point system which rates the academic subjects at twice the value of grades in the nonacademic (vocational) courses with a minimum requirement of 98 points. A key and a certificate are the "letter" of scholastic ability.

In what has been called "the cold war of the classrooms" a statement by an educator sums this up. "A democracy needs trained minds. It actually needs them more than a country where the power is in the hands of a few. We can't uphold our way of life by committing intellectual suicide. We have got to give our best students the toughest mental training they can take."

Other than the high school teachers and scattered citizens in a community, no organized group in a smaller city is in a better position to recognize the worth of scholastic achievement, especially in the sciences—biology, chemistry, mathematics and physics, than the members of a county medical society. Here is a Public Service project initiated by a county medical society in collaboration with a service club in an Illinois city upon the stimulation of one man, Dr. Harold Swanberg of Quincy. It is an interesting thought, this spotting of the intellectually capable high school student. A prospective award stimulates competitive spirit and is of especial value in urging a student forward in academic work and study. If need be, scholarships can be found for those who might otherwise not go to college.

Here is a thought for a Public Service Committee.

R. H. K.

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\*Address: Society for Academic Achievement, 209-224 W.C.U. Building, Box 110, Quincy, Ill.



## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Chattanooga-Hamilton County Medical Society

The Society held its regular monthly meeting in the Interstate Building on June 2nd. The scientific program consisted of a paper on "Vectorcardiography in Clinical Medicine," by Dr. Philip H. Livingston; "The Diagnosis of Gynecologic Disorders and Hysterosalpingography" by Dr. Thomas C. Monroe; and a case report by Dr. John J. Killeffer.

On June 17th the annual outing and barbecue of the Society was held at the Chattanooga Rod and Gun Club.

### Nashville Academy of Medicine and Davidson County Medical Society

The last Academy dinner meeting of the current season was conducted on June 9th at the Baptist Hospital Medical Auditorium. The program was on "Medico-Legal Pitfalls" with a panel discussion led by Dr. Charles C. Trabue, IV, moderator, and chairman of the Ethical Practices Committee; Dr. Louis Rosenfeld, Grievance Committee member; Dr. Greer Ricketson, Ethical Practices Committee, 1958 chairman; and Mr. Dan McGugin, legal counsel for the Academy's officially designated liability insurance program.

### Memphis-Shelby County Medical Society

The Memphis and Shelby County Medical Society met in regular session on May 5th at the U.S. Naval Hospital. Capt. E. P. McLarney was in charge of the scientific program. He presented Dr. O. W. Wickstrom, who welcomed the Society members to the Naval Hospital. Commander George J. Taylor, III, presented a paper entitled "The Importance of Consultation in Obstetrics." "The Pharmacology of Commonly Used Digitalis Preparations" was presented by Lt. Alan D. Rapp and discussed by Dr. Henry Gotten. Commander Robert H. Brown presented a paper entitled, "Commonly Encountered Simple Dislocations of Joints." The paper was discussed by Drs. Moore Moore, Jr. and Albert M. Jones.

### Knoxville Academy of Medicine

The Society met for its regular meeting on the evening of June 9th, in the Academy building. Dr. Henry William Scott, Jr., Nashville, surgeon-in-chief and professor of surgery at Vanderbilt University School of Medicine, was the guest speaker. His subject was "Surgical Management of Duodenal Ulcer with Operative and Post-Operative Considerations."

### Robertson County Medical Society

The Society held its regular monthly meeting on June 15th in the Jesse Jones Hospital. The speaker was Dr. Elmore Hill, Nashville, a dental surgeon. Dr. D. G. Hayes was voted into membership of the Society.

### Northwest Tennessee Academy of Medicine

The Society met at Boyette's Dining Room near Reelfoot Lake on May 26th for the regular monthly meeting. Two physicians from the Ochsner Clinic of New Orleans were speakers. They were: Dr. DeCamp and Dr. James, surgeon and internist respectively.

### Washington-Carter-Unicoi County Medical Society

The Society and the Ladies Auxiliary held a joint dinner meeting at Erwin in the Town House Hotel on May 7th. Mrs. Margaret Propst, teacher at Roan Mountain, Tennessee, was presented checks for the school from both organizations. The school placed second in a statewide health contest.

## NATIONAL NEWS

### The Month in Washington (From AMA Washington Office)

Congress went into the final months of this session with a heavy workload of appropriation bills and foreign aid legislation to be acted upon before adjournment. Congress must act upon the appropriation bills before adjournment to provide money for operation of the federal government during the 1960 fiscal year. Foreign-aid legislation

also is generally put in the "must" category now.

With so much "must" legislation requiring action and Congress hoping to adjourn by late August or maybe earlier, many bills of varying importance will be left for further consideration next year.

An upsurge in the national economy strengthened the position of the Administration and economy-minded members of the House and Senate in their opposition to big-spending bills. Supporters of a Senate-approved \$465 million airport bill conceded in advance that a House-Senate conference committee would approve a figure closer to the \$297 million version which the House passed.

Substantial gains in industrial production, corporate profits, employment and other key economic factors raised Administration hopes for only a small deficit, if not a balanced budget, in the fiscal year 1960 which began July 1. There also was some talk in influential quarters of a possible tax cut next year. But at this stage it was highly speculative. And it appeared most likely that if there is one, it will be small.

During the first five months of this session, Congress completed action on only two appropriation bills. They provided funds for operation of the Treasury and Post Office Department in fiscal 1960, and additional funds for various government activities during 1959.

Early in June, the House approved, 393 to 3, a \$38,848,339,000 Defense Department appropriation which included \$88.8 million for care of certain dependents of military personnel in civilian hospitals. In recommending the Medicare appropriation, the House Appropriations Committee commended the Defense Department "for its response to the intent of Congress . . . that dependents of military personnel have the benefit of prompt and adequate medical treatment at all times wherever they may be."

This contrasted with the Committee's criticism about two months ago. The Committee then expressed concern at what it termed "the high costs of care for military personnel and their dependents in civilian hospitals and the high fees allowed in the program."

In another Medicare development, the

Surgeon General of the Army ruled (ODMC Letter No. 7-59) that a patient under the program who has suspected or proven malignancy is acutely ill and qualifies for care. The government will pay for urgently required treatment in such cases when certified by the attending physician.

But it was made clear that payment would be based "solely on the medical requirement for immediate hospitalization." Qualifications of urgency cannot be based on mental anguish, emotional attitudes or socio-economic factors. The Defense Department rejected two proposals of the Florida Medical Association for changes in the medicare program. The Florida Medical Association proposed that a health insurance program be provided for dependents of military personnel or that control of the Medicare program be transferred to the Department of Health, Education and Welfare.

Dr. Frank B. Berry, Assistant Secretary of Defense for Health and Medicine, said the present program could be handled best by the military service because military dependents "are a highly transient population."

\* \* \*

Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, suggested to the House Subcommittee on Administration of the Social Security Laws that it consider the advisability of a single Public Assistance medical program as the prerogative of individual states. There are now four such programs covering the blind, the aged, dependent children, and the permanently and totally disabled.

In a letter to Rep. Burr P. Harrison (D., Va.) Chairman of the Subcommittee, Dr. Blasingame also suggested consideration of: Whether the medical staff of the Bureau of Public Assistance is now sufficient to provide adequate counselling to states on their individual programs, and

Whether "sufficient liaison has been maintained with the various professional organizations actually providing medical care.

Another suggestion of Dr. Blasingame was that a special medical advisory committee might be established in view of the fact that there are no physicians on the recently-appointed Social Security Advisory Committee.



## MEDICAL NEWS IN TENNESSEE

### St. Thomas Hospital, Nashville

A fluid and renal service has been established at St. Thomas Hospital with the Kolff artificial kidney as its nucleus. This kidney has been available for clinical use for the Middle Tennessee area since December. The unit is to be considered for use in selected situations, such as those producing "lower nephron nephrosis." It also may be of value in selected patients who have chronic renal insufficiency or selected problems in fluid and electrolyte balance, and in some patients who have taken exogenous poisons which are still present in the blood stream. Dr. Fred Goldner, Nashville, is consultant for its use.

### Vanderbilt University School of Medicine

A Symposium on "Nutritional Problems in Medicine," sponsored by the Council on Foods and nutrition of the A.M.A. and Vanderbilt was held on May 8. The morning session was devoted to Nutrition and Heart Disease with the following papers:—"Regulation of Electrolytes in the Management of Heart Disease" by Dr. Elliot V. Newman, Nashville; "Diet and Diuretics in Hypertensive Heart Disease" by Dr. Harriet P. Dustan, Research Division, Cleveland Clinic, Cleveland, Ohio; and "Role of Diet in Managing Coronary Heart Disease," Dr. Ashton Graybiel, School of Aviation Medicine, Naval Air Station, Pensacola.

The afternoon session was planned for "Nutrition and Disorders of Absorption," with papers as follow:—"Recognition and Management of Steatorrhea" by Dr. Julian Ruffin, Professor of Medicine, Duke University School of Medicine, Durham; "Celiac Disease and Pancreatic Fibrosis" by Dr. Paul E. A. di Sant' Agnese, Assistant Professor of Pediatrics, Columbia University College of Physicians and Surgeons, New York City; and "Absorptive Difficulties Following Gastrointestinal Surgery," by Dr. Parker Vanamee, Chief of the Physiology Section, Division of Experimental Surgery, Sloan-Kettering Institute for Cancer Research, New York City.

### Upper Cumberland Medical Society

The Sixty-fifth Annual Meeting was held at the Cloyd Hotel, Red Boiling Springs, on June 23-24, under the presidency of Dr. William S. Taylor, Cookeville. The program consisted of the following papers: "The Treatment of Intestinal Intoxication of Infants and Severe Forms of Diarrhoea in Infants," by Dr. R. C. Gas, Gainesboro; "Histoplasmosis," by Dr. Thayer Wilson, Carthage; "Replacement Arthroplasties of the Hip," by Dr. Thomas F. Parrish, Nashville; "An Unusual Case of Gastro-Ileostomy," by Dr. John L. Sawyers, Nashville; "Surgery of Common Bile Duct Strictures," by Dr. James A. Kirtley, Jr., Nashville; "Post-Viral Myopericarditis," by Dr. Crawford W. Adams, Nashville; "Plastic Facial Repair of Soft Tissue Injuries," by Dr. Kirkland W. Todd, Jr., Nashville; "Supra-condylar Fractures of the Elbow in Children," by Dr. Brant Lipscomb, Nashville; "Complicated Fractures of the Wrist," by Dr. Don L. Eyler, Nashville; "South America," by Dr. C. C. Howard, Glasgow, Ky.; "Turn Back a Few Pages," by Dr. J. T. Moore, Sr., Algood; "Plastic Reconstruction of the Parotid Duct for Chronic Salivary Fistula," by Dr. Beverley Douglas, Nashville; "Surgical Treatment of Cushing's Disease," by Dr. J. L. Farringer, Jr., Nashville; "Biliary Tract Symptoms Secondary to Idiopathic Strictures of the Sphincter of Oddi," by Dr. W. R. Cate, Jr., Nashville; and "The Artificial Kidney," by Dr. Fred Goldner, Nashville.

### Tennessee Heart Association

The Tennessee Heart Association conducted its second annual general assembly on June 12-13 in Chattanooga. Dr. Ben D. Hall of Johnson City assumed the presidency, succeeding Dr. Otis Warr, who was named chairman of the board. Brig. Gen. Philip Ardery of Louisville, Kentucky, addressed the assembly. Some 150 delegates from the six Heart Chapters in Tennessee attended. Dr. David McCallie, Chattanooga, presided at the general session. Frank G. Clement, former governor of Tennessee, spoke to the assembly. His subject was, "The Heart Fund Challenge for 1960."

### Glaucoma Clinic

Sixteen Hamilton County Lions Clubs and



the Chattanooga Ophthalmologist Society sponsored a glaucoma screening clinic on June 18th. Drs. Stewart Lawwill, Jr., Ira M. Long and C. H. Alper, were participants on the clinic committee. Only persons age 40 and over were eligible for screening. It was determined that some 150 persons of the large number examined found that they needed treatment for glaucoma. The Hamilton County Health Department, the Eye Clinic at Erlanger, Erlanger student nurses, 300 Lions and wives and the Chattanooga-Hamilton County Eye, Ear, Nose and Throat Society assisted with the clinic.

### **Hospitals Allotted \$4,405,616**

The State Hospital Advisory Committee allocated \$4,405,616 in federal funds for hospital construction projects in Tennessee. The largest allocation went to the State Mental Health Department for a psychiatric hospital at Memphis. The allocation totaled \$1,000,000. Vanderbilt University Hospital at Nashville was allocated \$427,218 and 75 new beds and \$27,992 for a diagnostic and treatment center. Other allocations included Nashville General Hospital, \$192,920 and 32 beds; Bradley County Hospital, Cleveland, \$260,000 and 47 beds.

The Committee also approved \$108,333 for a public health laboratory at East Tennessee State College in Johnson City, and \$54,167 for a similar laboratory at Jackson. Other large allocations were for public health centers at Chattanooga, Nashville, Memphis, Jackson, Clarksville and Springfield. Allocations for chronic disease facilities included \$151,278 for Bristol Memorial Hospital. An allocation of \$105,348 was approved for a state rehabilitation center at Memphis.

### **Tennessee Pediatric Society**

The Tennessee Pediatric Society held its annual meeting on May 17-18 in the auditorium of the Methodist Hospital at Memphis. Greetings were extended by Dr. James C. Overall of Nashville, president of the American Academy of Pediatrics. Program speakers included: Dr. Paul Benton, pediatric psychiatrist from Tulsa, Oklahoma; Dr. J. R. Paul, professor of pediatrics at the Medical College of South Carolina in Charleston; and Dr. Carl Smith, professor of clinical pediatrics at Cornell University Medical College in New York. Topics dealt with

organic behavior disorders of children, jaundice in the newborn period, management of blood disorders during infancy and childhood and other pediatric subjects.

Dr. Philip C. Elliott, Nashville, was elected president of the society. Two Knoxville pediatricians were elected to offices in the society. Dr. Jack Mohr was elected vice-president and Dr. James Chesney, chairman of the State Chapter of the American Academy of Pediatrics. Dr. George Lovejoy, Memphis, was elected secretary-treasurer.

### **West Tennessee Medical & Surgical Society**

The Society in cooperation with the Tennessee Academy of General Practice recently met at the U.S. Naval Hospital at Millington and elected officers for the year. New officers are Dr. George E. Spangler, Humboldt, president; Dr. B. F. McNulty of Bolivar, first vice-president; Dr. W. E. Anderson, Dyersburg, second vice-president; and Dr. Oliver H. Graves, Jackson, secretary-treasurer. The program was headed by Dr. Julian K. Welch and Dr. David E. Stewart, both of Brownsville. Discussions were conducted by Dr. Stewart. Dr. Duval Koonce and Dr. W. M. Phillips of Jackson also participated.

The next meeting will be headed by Dr. T. K. Ballard, Dr. John Riddler and Dr. Koonce, all of Jackson. The meeting will be held at the New Southern Hotel in Jackson.

### **GP One-Day Symposium**

Four speakers appeared before the Chattanooga Area Chapter of the American Academy of General Practice one-day symposium at South Pittsburgh. Dr. Edwin L. Williams, Nashville, spoke on "Functional Uterine Bleeding"; Dr. Roy W. Parker, Nashville, discussed "Office Gynecology"; Dr. William G. Kennon, Jr., Nashville, outlined "ENT Office Procedures"; and Dr. Eugene L. Bishop, Jr., Nashville, discussed "ENT Management of Allergies."

### **Ambulance Code Studied**

The possibility of setting up a uniform ambulance code by a city ordinance in Memphis is being considered. A committee from the Memphis and Shelby County Medical Society met with the Commissioner recently and outlined the need for such a code. The

committee was composed of Dr. Malcolm Aste, Dr. Anthony Jerome and Mr. Les Adams, Executive Secretary of the Society.

A suggested list of minimum requirements was set forth for companies operating ambulances. A minimum age limit for drivers and attendants, that they should be high school graduates and all ambulances should be equipped with emergency items such as oxygen and splints, was recommended. All drivers and attendants of ambulances would also have to have first aid training. The Society's committee has been assured that their recommendations would be presented for a full discussion by the Memphis City Commission.

### University of Tennessee College of Medicine

A grant to finance a postgraduate program in psychiatry for general practitioners has been awarded to Dr. P. J. Sparer, professor of psychiatry and preventative medicine at the University of Tennessee College of Medicine in Memphis. The \$1,346 grant was made by the National Institute of Mental Health of the United States Public Health Service.

## PERSONAL NEWS

**Dr. Bryant S. Swindoll**, director of the Coffee and Franklin county health departments will return to his duties after a nine-month leave of absence for advance study at Tulane University.

**Dr. H. G. Barker**, Humboldt, has been named president of the St. Mary Hospital staff. **Dr. F. Douglass**, Dyer, is the new vice president and **Dr. Eugene C. Crafton** of Trenton is secretary.

**Dr. Basil Bland**, Memphis, is the new president of the Memphis Serra Club.

**Dr. Marcus J. Stewart**, Memphis, recently addressed the Junior Chamber of Commerce.

**Dr. John W. Avera**, Knoxville, has assumed the presidency of the East Tennessee Heart Association.

**Dr. Gerald I. Plitman**, Memphis, recently addressed the St. Joseph Hospital Auxiliary. His subject was "Hematology."

**Dr. Jess A. Powell**, Athens, recently addressed the Kiwanis Club. His subject was "Emotional Disturbances."

**Dr. W. C. Crowder**, Maryville, has been elected chief of staff at Blount Memorial Hospital. He succeeds **Dr. W. N. Dawson**. **Dr. John Yarborough** was elected vice chief.

**Dr. Ralph H. Monger**, Knoxville, is the new

laboratory directory and **Dr. W. C. Sharp, Jr.**, Knoxville, is the new associate pathologist at Fort Sanders Presbyterian Hospital.

**Dr. Edwin F. Chobot, Jr.**, Chattanooga, has become associated with **Drs. August McCravey, Walter E. Boehm, Robert A. Waters** in the practice of neurology, neurosurgery and electroencephalography.

**Dr. James D. Ely**, director of the Cancer Clinic at the University of Tennessee Hospital, recently spoke at the Maynardville High School. His topic was "Detection and Prevention of Cancer."

**Dr. Albert Weinstein**, Nashville, addressed the Lebanon Rotary Club. His subject was "Prevention of Heart Disease."

**Dr. Tom Proctor**, radiologist at Blount Memorial Hospital, Maryville, recently spoke on radiation hazards at the luncheon of the Alcoa Rotary Club.

**Dr. Jack Adams**, Chattanooga, recently addressed the Woman's Auxiliary of Erlanger Hospital.

**Dr. Carl A. Hartung**, Chattanooga, has become a Fellow in the American College of Cardiology.

**Dr. James C. Gardner**, Nashville, recently addressed the Nashville Rotary Club on the subject, "New Frontiers in Medicine."

**Dr. Spencer Y. Bell**, Knoxville, represented the American Academy of General Practice at a cancer conference in Brighton, Utah.

**Dr. H. L. Monroe**, Erwin, spoke to the Erwin Kiwanis Club recently on radiation and atomic fall-out.

**Dr. Walter K. Hoffman**, has been named president elect of the Memphis Heart Association. **Dr. Robert F. Ackerman** will succeed **Dr. J. Warren Kyle** as president and **Dr. John P. Conway** was elected vice president.

The Knox County Unit of the American Cancer Society has named **Dr. James B. Ely**, Knoxville, as president for the coming year. **Dr. Victor H. Klein, Jr.** was named vice president.

**Dr. Estle P. Muncy**, Jefferson City, has been named president-elect of the East Tennessee Heart Association.

**Dr. Elliot V. Newman**, Nashville, has been named president elect of the Middle Tennessee Heart Association. **Dr. James J. Callaway** was named president.

**Dr. Samuel S. Riven**, Nashville, has been named president elect of the Tennessee Heart Association. **Dr. Crawford Adams**, Nashville, was elected vice president. Installed as president for the year 1959 was **Dr. Ben Hall** of Johnson City. **Dr. Walter Huffman**, Memphis, was elected secretary.

**Dr. Thomas Johnson**, Dyersburg, has been elected president of the West Tennessee Heart Association. **Dr. David Taylor**, Dyersburg, has been elected to the Board. **Dr. John Neumann**, Paris, has been named president elect.

The following Tennessee doctors were certified by the American Board of Obstetrics and Gynecology on May 16, 1959. They are: **Dr. William H. Gardner** of Knoxville, **Dr. Martha A. Loving** of Memphis, and **Dr. Madison H. Sarratt**, Nashville.



**Dr. Hollis E. Johnson** of Nashville, was named First Vice President at the annual meeting of the American College of Chest Physicians. **Doctors E. Wayne Gilley**, of Chattanooga and **Douglas H. Riddell**, Nashville, received Fellowship Certificates at the Convocation.

## ANNOUNCEMENTS

### International Medical Conference

July 27-31: First International Medical Conference on Mental Retardation. The Eastland Hotel, Portland, Maine. Address: Dr. Ella Langer, State House, Augusta, Maine.

August 30-September 4: Second World Conference on Medical Education. Palmer House, Chicago. Address: World Medical Association, 10 Columbus Circle, New York 19, New York.

### Southeastern Surgical Congress

The Southeastern Surgical Congress announces its annual Prize Scientific Paper Award for 1959. The contest is open to residents in AMA approved residencies in the States of Alabama, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia. The best unpublished contribution on surgery or allied subjects will be awarded \$100 and expenses for the winner to attend its next annual meeting in New Orleans. The winner will present his paper before the Southeastern Surgical Congress Assembly in New Orleans at the Roosevelt Hotel, March 21-24, 1960. Three copies of the papers should be submitted to the Councilor and forwarded to the home office of the Southeastern Surgical Congress at 1032 Hurt Building, Atlanta 3, Georgia.

### Medical Licenses Issued to Physicians

Sandstead, Harold H., Bethesda, Md.  
Heilman, Richard B., Atlanta, Ga.  
Evans, Hillis F., Madison College  
Cox, Ralph L., Nashville  
Thorpe, Emmet, Durham, N.C.  
Day, George L., Nashville  
Perry, Ludwald O. P., Nashville  
Hillman, Charles H., Johnson City  
McGanity, William J., Nashville  
Lyons, George C., Surgoinsville  
Knox, Frederick H., Jr., Memphis  
George, Charles W., Jacksonville, Fla.  
Kuester, Evert E., Spartanburg, S.C.  
Pate, James W., Memphis

### American Institute of Ultrasonics in Medicine

The American Institute of Ultrasonics in Medi-

cine will hold their Annual Meeting on September 2, 1959 at the Leamington Hotel, Minneapolis, Minnesota. The guest speaker at the Luncheon Meeting will be Russell Meyers, M.D., Professor of Surgery and Chairman, Division of Neurosurgery, State University of Iowa Hospitals and College of Medicine, who will discuss "The Potentials of Ultrasonics in General Surgery and Surgical Specialties." For any further information contact John H. Aldes, M.D., Secretary, 4833 Fountain Avenue, Los Angeles 29, California.

### Mid-Atlantic Meeting—International College of Surgeons

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia on November 16, 17 and 18th. The profession is cordially invited to attend.

## BOOK REVIEW

**Hearing: A Handbook for Laymen.** By Norton Canfield, M.D., Associate Clinical Professor of Otolaryngology, Yale University School of Medicine. 214 pages. Doubleday & Company, New York. Price \$3.50.

Between the covers of a small volume Dr. Canfield has succeeded in explaining in simple prose the problem of deafness and hearing loss occurring anywhere from infancy to late adult life and in emphasizing what can be done to prevent, correct or alleviate the difficulty by educational, technical, mechanical, medical, or surgical means. Those who work in the field of hearing rehabilitation are well aware of the complexities of hearing handicaps and the variables in effective restoration of communication skills. Beyond that field the intricacies are less well appreciated or understood. It is to Dr. Canfield's great credit that he has clarified so ably and with such apparent ease the myriad differences. After content, readability and warmth are its outstanding characteristics; with humorous and compassionate stories the author has written himself into his book. An unusually detailed table of contents provides easy location of specific subject matter. The attractive format deserves mention because it will appeal to the layman to whom the work is directed—the patient, the family and the general reader. This book will probably also be of considerable value to the medical profession.

In addition to his distinguished career as a teacher, Dr. Canfield is well known as President of the Audiology Foundation. (Anne Sweeney, Bill Wilkerson Hearing and Speech Center.)



**President**—Harmon L. Monroe, M.D., Erwin  
**President-Elect**—Ralph O. Rychener, M.D., 1720 Exchange Building, Memphis  
**Vice-President**—R. David Taylor, M.D., Dyersburg  
**Vice-President**—James M. King, M.D., Tullahoma  
**Vice President**—John H. Burkhardt, M.D., 3000 N. Broadway, Knoxville  
**Secretary-Editor**—R. H. Kampmeier, M.D., Vanderbilt Hospital, Nashville  
**Executive Director**—Mr. J. E. Ballentine, 112 Louise Ave. Nashville 5

### BOARD OF TRUSTEES

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 \*R. H. Kampmeier, M.D., (1960), Vanderbilt Hospital, Nashville  
 \*Harmon L. Monroe, M.D., (1961), Erwin  
 \*Julian K. Welch, Jr., M.D., (1960), Brownsville

Joseph W. Johnson, Jr., M.D., (1960), Interstate Building, Chattanooga  
 Henry T. Kirby-Smith, M.D., (1960), Sewance  
 Ralph O. Rychener, M.D., (1962), 1720 Exchange Building, Memphis  
 Daniel R. Thomas, M.D., (1960), 603 W. Main Avenue, Knoxville  
 Wm. J. Sheridan, M.D., (1962), Medical Arts Building, Chattanooga  
 John D. Hughes, M.D., (1960), 20 South Dudley St., Memphis  
 \*(Members of Executive Committee)

### SPEAKER OF THE HOUSE

Joseph W. Johnson, Jr., M.D., Chattanooga  
**Vice-Speaker**—J. Malcolm Aste, M.D., 188 South Bellevue, Memphis

### COUNCILORS

**First District**—Carroll H. Long, M.D., Chairman, 107 W. Fairview, Johnson City (1960)  
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**Ninth District**—W. E. Anderson, M.D., Dyersburg (1960)  
**Tenth District**—Duane M. Carr, M.D., Memphis (1961)

### DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Wm. C. Chaney, M.D., Memphis (1961)  
 Chas. C. Smeltzer, M.D., Knoxville (1960)  
 Daugh W. Smith, M.D., Nashville (1961)  
**Alternates**—Harold B. Boyd, M.D., Memphis (1961)  
 Wm. J. Sheridan, M.D., Chattanooga (1960)  
 R. H. Kampmeier, M.D., Nashville (1961)

## PRESIDENTS AND SECRETARIES OF COUNTY MEDICAL SOCIETIES, 1959-60

### Anderson-Campbell County

**Medical Society**  
 John C. Pryse, M.D., LaFollette, President  
 Roscoe C. Pryse, M.D., LaFollette, Secretary

**Bedford County Medical Society**  
 Sara Womack, M.D., Shelbyville, President  
 John Derryberry, M.D., Shelbyville, Secretary

**Benton-Humphreys County Medical Society**  
 James J. Lawson, M.D., Box 586, New Johnsonville, President  
 Hiram C. Capps, M.D., Waverly, Secretary

**Blount County Medical Society**  
 J. W. Christofferson, M.D., Med. Arts Bldg., Maryville, President  
 J. H. Bowen, M.D., Blount Mem. Hospital, Maryville, Secretary

**Bradley County Medical Society**  
 Gilbert Varnell, M.D., 590 Church St., Cleveland, President  
 Hays Mitchell, M.D., 590 Church St., Cleveland, Secretary

**Chattanooga-Hamilton County Medical Society**  
 Carl A. Hartung, M.D., 744 McCallie Ave., Chattanooga, President  
 Harry A. Stone, M.D., Med. Arts Bldg., Chattanooga, Secretary

**Cocke County Medical Society**  
 Drew A. Mims, M.D., 416 Broadway, Newport, President  
 W. E. McGaha, M.D., 302-A East Main, Newport, Secretary

**Coffee County Medical Society**  
 Howard Farrar, M.D., Manchester, President  
 C. H. Webb, M.D., Tullahoma, Secretary

**Consolidated Medical Assembly of West Tennessee**  
 John Thornton, M.D., Brownsville, President  
 George B. Wyatt, M.D., 444 E. Main, Jackson, Secretary

**Cumberland County Medical Society**  
 W. G. Crook, M.D., Children's Clinic, Jackson, Asst. Secretary

**Cumbarland County Medical Society**  
 Paul Ervin, M.D., Crossville, President  
 James Callis, M.D., Crossville, Secretary

**Nashville Academy of Medicine-Davidson County Medical Society**  
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 Douglas H. Riddell, M.D., 2318 West End Avenue, Nashville, Secretary

**Dickson County Medical Society**  
 Mr. Jack Drury, 112 Louise Avenue, Nashville, Executive Secretary

**Dickson County Medical Society**  
 James Elliott, M.D., Charlotte, President  
 E. W. McPherson, M.D., 222 Church St., Dickson, Secretary

**Fentress County Medical Society**  
 Jack Smith, M.D., Jamestown, President  
 B. F. Allred, M.D., Jamestown, Secretary

**Franklin County Medical Society**  
 P. J. Flippin, M.D., Decherd, President  
 George L. Smith, M.D., Winchester, Secretary

**Giles County Medical Society**  
 Roy Money, M.D., Pulaski, President  
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**Greene County Medical Society**  
 L. E. Coolidge, M.D., Takoma Hospital, Greeneville, President  
 Carl F. Romans, M.D., Takoma Hos-

pital, Greeneville, President  
 John H. Kinser, M.D., Morristown, President  
 E. P. Muncy, M.D., Jefferson City, Secretary

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 J. S. Lyons, M.D., Rogersville, President  
 W. H. Lyons, M.D., Rogersville, Secretary

**Henry County Medical Society**  
 E. P. Mobley, M.D., Paris, President  
 John E. Neumann, M.D., Paris, Secretary

**Hickman-Perry County Medical Society**  
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**Warren County Medical Society**  
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 Carl T. Stubblefield, M.D., McMinnville, Secretary

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 John Knapp, M.D., Elizabethton, President  
 Rutledge Miller, M.D., 215 Boone St., Johnson City, Secretary

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**White County Medical Society**  
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 Walter Pyle, M.D., Franklin, President  
 Wm. F. Encke, M.D., Franklin, Secretary

**Wilson County Medical Society**  
 W. K. Tillev, M.D., Martha Gaston Hosp., Lebanon, President

## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville, Tennessee.*

### Locations Wanted

A 30 year old married physician. Presbyterian. Graduate University Pennsylvania. Desires Internal Medicine practice in medium sized community. Will have completed 3 years Internal Medicine residency July, 1959. Available immediately. LW-312

A 32 year old married physician. Episcopalian. Graduate Columbia University. Desires to specialize in Otolaryngology in clinic or association with other doctor. Available August, 1959. LW-317

A 37 year old married physician. Greek Orthodox. Graduate University of Salonika, Greece. Desires clinical or assistant practice in Pediatrics. Has 2 years Pediatrics residency. Available July, 1959. LW-322

A 35 year old married physician. Methodist. Graduate University Alabama. Has 2 years general surgery residency. Desires clinical or associate practice in middle or east Tennessee community of 5,000 to 25,000. Available July, 1959. LW-326

A 35 year old married physician. Presbyterian. Graduate University Tennessee. Has one year surgery residency and 3 years radiology residency. Desires to specialize in radiology in assistant or associate practice in east Tennessee community of 50,000 to 100,000. Available immediately. LW-329

A 37 year old married physician. Presbyterian. Desires associate or clinical practice in Ob-Gyn in middle or east Tennessee community of 25,000 or over. Available immediately. LW-331

A 33 year old married physician. Baptist. Desires general practice and surgery in east Tennessee community of 5,000 or over. Available immediately. LW-333

A 39 year old married physician. Protestant. Graduate University of Louisville. Desires Clinical practice in internal medicine in west or middle Tennessee community of 15,000 to 35,000. Has 3 years internal medicine residency. Available August, 1959. LW-334

A 35 year old married physician. Baptist. Graduate University of Louisville. Has 4 years general surgery residency. Desires to specialize in surgery in east or middle Tennessee community

of 20,000 to 80,000. Available August, 1959.

LW-336

A 39 year old married physician. Protestant. Graduate University of Cincinnati. Desires clinical, assistant or associate practice in surgery in Tennessee community of 50,000 or over. Available October, 1959. LW-337

### Physicians Wanted

Pediatrician with training to satisfy Board requirements needed in middle Tennessee community with new hospital and office space near hospital. Laboratory and X-ray included on rental basis, if desired. PW-116

Physician in large southern Tennessee community desires associate eligible for Board Certification in Internal Medicine. Desires sub-specialty in Cardiology. All equipment and office facilities provided. PW-118

Small Central Tennessee community desires general practitioner. No other physicians. Community will discuss possibilities of building clinic for physician's use. PW-120

Medical clinic in middle Tennessee desires physician 55-60 to handle emergency room in evenings. Excellent salary. Position ideal for physician retiring but desiring some light practice. PW-121

Middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area 8,000. Located 72 miles from Nashville and about 32 miles from 3 hospitals. Agriculture and small industry. Excellent high school and elementary school. Adjacent to one of state's finest recreational areas. PW-123

Four partner clinic in northwest Tennessee community of 10,000 desires associate under 35 years of age for general practice. Hospital located in community. PW-124

Middle Tennessee community of 1,700 desires general practitioner age 25-40 interested in rural practice. No other physician in community. PW-125

Physician in west Tennessee town of 500,000 desires an associate for internal medicine practice. Office space and some equipment provided. PW-126

Physician in east Tennessee town of 30,000 desires an associate general practitioner and surgeon. Office space and some equipment provided. PW-127

Clinic in east Tennessee community of 4,000 has opening for general practitioner interested in Obstetrics. Hospital located in community. PW-128



# Journal of the Tennessee State Medical Association

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Anesthesiology is the newest major specialty which received its greatest stimulus by the many anesthetic agents available and the surgeon's progress in attempts at major surgery not even dreamt of a decade or more ago. In fact, much of what has been accomplished in surgery has been possible only because of modern anesthesiology.

## The Role of the Anesthesiologist in the Practice of Medicine\*

SCOTT M. SMITH, M.D.,† Salt Lake City, Utah

### Role

During the last few decades, a tremendous growth has occurred in the specialty of anesthesiology. As a result of this growth, the anesthesiologist has gained recognition as a specialist in his own right. In this time many important and significant advances have been made. Correspondingly, the personal responsibility of the anesthesiologist today is greater than ever. No other physician's power remotely approaches the power of the anesthesiologist in making such great physical and mental alterations.

It is well established now that there is much more to anesthesiology than the mere selection and administration of a particular anesthetic agent or technic. It is the responsibility of the specialist in this field to allay fear and anxiety with his pre-anesthetic visit and medication. He takes away and restores consciousness. He obliterates pain or all feeling, either locally or generally. He stops spontaneous respiration, when necessary, for long periods of time, and he allows it to return. With selected drugs, and at will, he can paralyze the body, control ganglionic function, and cause blood vessels to dilate or contract. He can reduce blood pressure to below normal levels, and for hours can prevent its re-establish-

ment to normal levels in order to aid in control of bleeding. He can reduce the metabolism of the body by hypothermia, thereby reducing the body's oxygen demands. He can control the vital functions of consciousness, of respiration, of circulation, of neuromuscular functions, and of metabolism under the adverse circumstances of the strain imposed by pre-existing disease and by surgery.

The specialty of anesthesiology, as we know it today, started with the objective of providing both patient and surgeon with the best available conditions during operative procedures. In its beginning there were only a handful of physicians trained and interested in anesthesiology. They laid the foundation of this specialty.

Anesthesiologists are doctors of medicine first, and trained specialists second. With them, as with all true physicians, the goal is better medicine and the best in medical care for all people. The limited sphere of his specialty does not exempt the anesthesiologist from the code of ethics, moral, professional, legal, and other obligations expected of the average physician. The average physician and all agencies concerned with the treatment of the sick need cooperation and aid from the specialty of anesthesiology.

### Contributions and Problems

It is indeed difficult to place an exact value on the services of a well trained and conscientious anesthesiologist in the various

\*Read before the meeting of the Tennessee State Medical Association, April 13, 1959, Memphis, Tenn.

†From the Department of Anesthesiology, University of Utah, Medical School, Salt Lake City, Utah.



fields of medicine. Who is more expertly trained than the anesthesiologist to handle the pain problem in the psychiatric patient, control the convulsions in the pediatric patient (with potent drugs), and to evaluate the problems of pain pathways in the pre-operative period of the neurosurgical patient, or give aid in patients with pulmonary edema, whether it be from cardiac failure or some other cause?

The following slides will give a fair indication as to his value in the administration of anesthesia to patients undergoing cesarean section. It will be noted that the incidence of cyanosis in the early new born period was reduced over 50% when the anesthesia was administered by an anesthesiologist. This was true regardless of the agents or technics used.

Infant mortality, likewise, was reduced more than 50% when the anesthetic was administered by competent anesthesiologists, as compared to anesthetics given by personnel with less training. Again, this reduction in mortality occurred irrespective of the agents or technics used.

In spite of these facts, there are some groups and individuals responsible for hospital administration whose interest lies too strongly in the *control* rather than adequate *performance* of services rendered to patients.

These individuals and groups continually refuse to permit improvement in the quality of patient care because of the potential loss or revenue from the Department of Anesthesia. Perhaps closer evaluation and payment of the medical and funeral expenses for those patients needlessly harmed or lost would provide a more realistic outlook.

Anesthesiology will have an opportunity in the years immediately ahead to contribute more to the advancement of patient safety and comfort than any other specialty.

We have worked hard to lay the foundation for this contribution.

The development of new and better techniques for administering a vast array of anesthetic and analgesic agents is proceeding at an unprecedented pace.

Furthermore, there is not the slightest doubt but that anesthesiology will remain

the fastest growing of all medical specialties for years to come.

The work of our pioneers has established the sound foundation of technic and knowledge essential to a major increase in the margin of safety and comfort for every surgical and obstetrical patient.

Yet we cannot say that the full benefits of such technic and knowledge are being applied to every patient. Great gaps exist in training and recruiting.

There still are many hospitals with no anesthesiologist on the staff, and others with only one or two qualified men. It is probable that only one-third to one-half of the anesthesia for surgical and obstetric procedures is administered by physicians with specialized training.

Though our knowledge, admittedly, is by no means complete, we do have the background today to make tremendous progress in the improvement of the patient's safety. The problem is, however, that the knowledge we do have, as well as the benefits of the available technics, are not being made available to all patients in our hospitals.

I often think that one of our greatest needs today is for even better cooperation between anesthesiology and other branches of medicine. Our colleagues should understand the implications of recent developments in anesthesiology, and should be made fully aware of the possibilities inherent in the knowledge and technics which have been developed.

We read of the heroic rescues occurring when a heart has stopped under anesthesia. But we often *fail* to think of the heart that *goes on* firmly beating because the qualified anesthesiologists have recognized the danger signals and prevented the emergency before it arises.

We are often prone to shrug off the unexpected as an inevitable part of medical practice, and to over-simplify the problems that actually can occur in the most minor procedures.

Anesthesiology today involves an increasingly complex knowledge of pharmacology and physiology. It can contribute to the margin of safety in any procedure, no matter how major or minor. But much of this knowledge is comparatively new to the specialty and to the profession generally. We.

as anesthesiologists, therefore, have an increasing responsibility to inform others about the "why" and the "how" of our activities.

### The Missing Element

I do not suppose that "inadequate anesthetic technic" has ever been listed on any hospital record as the cause of death in the operating room. I am not sure that it would be recognized as the cause in many instances.

A lack of statistics and evidence in regard to preventable death in the operating and delivery room is one of the great factors which makes it difficult to appreciate the role of the anesthesiologist.

Comparing simple statistics can be misleading. A hospital in which good anesthesia is practiced and which handles an unusual number of difficult procedures might have a greater percentage of deaths under anesthesia than another hospital whose Department of Anesthesia is less competent, but whose surgical load is made up of minor procedures.

However, excellent pioneering has been done in certain areas to pinpoint with reasonable accuracy the causes of death under anesthesia, and to analyze and evaluate these causes of death. This establishes a method by which others may observe the importance of a qualified anesthesia service in increasing the margin of safety to the patient.

Continuing emphasis on the compilation of accurate figures is essential. Needless risk is being taken in some hospitals, and preventable death continues to occur because modern anesthesiologic service is neither provided nor desired. Adequate statistics could be of inestimable value in educating everyone concerned regarding the contribution made by an adequate professional anesthesiology service.

### The Spread of Knowledge

The number of medical schools offering training to undergraduate students has increased materially in recent years. Opportunities for postgraduate instruction in anesthesia have likewise increased. The total national program of instruction just twenty years ago was less than we would expect today as a minimum residency train-

ing program in a single city of substantial size.

I mention these facts because it is impossible to stress too strongly the fact that anesthesiology, as we know it today, is still a comparatively new specialty. Papers have been presented, exhibits offered, lectures given, and articles written. But it is easy to misjudge the amount of effort needed to educate a large group in something new, or to keep abreast of changing developments. The effort must be continuous, and it must be substantial.

We sometimes make the mistake, as anesthesiologists, of talking to ourselves when we should be talking to others. We too frequently take it for granted that a fellow physician knows as much as we do about a field in which we have spent years.

When we realize that there was comparatively little training available for anesthesiologists a few years ago, and that the bulk of progress in our specialty has occurred within the past twenty years, it becomes apparent that there must be a vast lack of knowledge about the newer technics and the developments in anesthesiology.

Physicians in other fields are not going to tell one another about anesthesiology. If we do not explain what we are doing, no one will ever know. The anesthesiologists must remember that explaining the needs, the objectives, and the possibilities of adequate technics in anesthesiology is a continuing and never ending job.

### The Demands of Time

I have talked about the constantly expanding demand for men and women with qualified training in anesthesiology in institutions and areas where present staffs are inadequate. Most of us realize that this is not the only problem related to the growth of the specialty.

One of the little noted, but vitally important phases of the anesthesiologist's work is the preoperative visit. Adequate examination and preparation of each surgical patient, as an individual, with careful study of his or her individual needs and problems, is considered an important responsibility by most anesthesiologists today. The patient's tensions and fears are eased with medication. Even hypnosis may be utilized if required. His personal medical record



and his present condition are appraised in terms of the drugs to be administered and the technics to be used. In a sentence, *the preoperative visit saves lives*.

So called minor procedures can result in emergencies if the administration of anesthesia is not planned on an individual basis and suited to each patient's problems and needs. Because of the progress made in maintaining the patient's condition, more time can be taken during many surgical procedures. The danger of shock is reduced. The need for surgical haste is eliminated. These improvements have decreased the surgical risk, and made surgery possible for many patients previously considered inoperable. They have greatly increased the average duration of operative procedures in many institutions. I do not intend to infer, however, that the quality of surgery is related to the time required to perform it.

#### In Other Spheres

The technics of the anesthesiologist are often of much assistance following operation or obstetrical delivery, in providing therapy or resuscitative action. The service rendered in the recovery room is an increasing factor in proper use of the anesthesiologist's time. For example, one or more qualified anesthesiologists are likely to be on the spot at all times in many institutions, and are ready for action of hemorrhage or other emergencies occur.

We know that an assistant surgeon is required in many procedures. It is equally true that a second anesthesiologist may be required if maximum safety for the patient is to be assured.

Because of his knowledge of gases, the anesthesiologist can be of material assistance as a consultant in preventing fires and explosion, and in safer handling and administration of oxygen. His assistance with problems of respiration and resuscitation can be life saving. In fact, assistance in respiratory problems is often a time consuming, but little noticed part of his work, throughout the hospital, with both surgical and non-surgical patients.

Another front concerns the happiness of the patient. Anesthesiologists are interested, as are all physicians, in keeping the patient happy. Whether this is called pub-

lic relations, good will, or just good service, we have found that informing the patient about what is going on and keeping him relaxed and at ease is sound medical practice.

I could go on with a long list of developments . . . in hypnosis, in hypothermia, in improvements within the recovery room, and the "around-the-clock acute surgical room," in new agents to solve present problems, and in many similar activities.

Each of these activities, however, tends to reduce the number of patients that can be served adequately by an individual anesthesiologist. He is required to spend more time with the patient before, during, and after the operation. To do less is to reduce the margin of safety.

Here then, is another factor contributing to the need for more young men in the specialty of anesthesiology. But we will never make the progress that is required in this direction unless we first prove both the need and the benefits to the satisfaction of our colleagues in the profession.

#### Today's Need

Experience has proved that constant improvement in professional anesthesia care means constant increase in the patient's margin of safety.

The background of technic and knowledge in anesthesia, when applied fully in the case of each patient, is adequate to reduce the number of deaths under anesthesia in a truly significant ratio. Great progress is being made in this direction. The progress that has been made means little unless it is specifically applied to the individual patient by a qualified physician anesthesiologist.

The medical staff of all hospitals has a rapidly growing responsibility. It must see to it that an adequate Department of Anesthesiology is available. This staff must prepare for the time when 24 hour-a-day service will be provided by such a Department of each hospital. The medical staff must accept responsibility for obstetrical anesthesia, for supportive therapy, and all other fields in which specialized training and knowledge of anesthesia technics can be helpful. If this challenge is not met by the medical staff, the functions of the Department of Anesthesia could be taken over by the hospital administration.

A few institutions have sought to profit



by hiring inadequate anesthesiology staffs, putting a few physicians on a salary, and charging for professional services that in actuality are not provided. We do not want this situation to develop.

The anesthesiologist is a physician putting a physician's technics and training at the patient's service, just as does any other physician. This obviously means that he must practice in the same way as do other physicians.

Little or no difficulty is usually encoun-

tered in obtaining adequate anesthesiologists where the institutions require them to be on the same basis as other staff members.

Our goal of adequate anesthesiologic care for every patient is within sight. We have come a long way, but we believe that the greatest contributions lie just ahead, in the continuing expansion of the specialty, making a higher level of care available to more and more patients with each year that passes.

## These Are the Facts About the Forand Bill

### 1. *What is the Forand bill?*

The Forand bill is a proposal to amend the Social Security Act to provide for the federal purchase of certain health care services for social security beneficiaries. Introduced in the 86th Congress by Rep. A. J. Forand of Rhode Island, H. R. 4700 is now before the House Ways and Means Committee, of which Mr. Forand is second-ranking member. Under the bill's terms, some 16 million persons eligible for social security benefits—mostly those over 65—would be entitled to receive hospital, surgical and nursing home treatment under a government-run program. The government would contract to pay hospitals, nursing homes, physicians and dentists for the services they would provide.

### 2. *What would it cost?*

Authoritative estimates—based upon the 16 million persons who are eligible for social security benefits at the present time—are in the neighborhood of \$2 billion for the first and second years. When it is considered that the number of persons eligible for social security benefits will increase steadily in the years ahead, it becomes obvious that the cost of the program will rise accordingly, year after year. The expense would be staggeringly high, and could jeopardize the retirement security of millions who depend on social security for their basic retirement needs.

### 3. *Who would pay the bill?*

Everyone who pays social security taxes. Already those taxes are scheduled to reach 9% of payroll—up to \$4800—in the years ahead. The Forand bill would send them higher. The increases it calls for, on top of those already scheduled by law, would mean a smaller paycheck for everyone under social security.

### 4. *Would this raise in the social security tax cover the cost of the program?*

Probably not. Historically, cost estimates for compulsory health insurance—for any segment of the public—invariably fall way short of reality. This factor, plus the constant increase in our older population, makes it improbable that the Forand bill estimates would prove an exception to the general rule.

### 5. *What are the basic faults of the Forand bill?*

There are many of them besides high cost. Here are a few: (1) Care for the older citizens calls for a cooperative attack on the problem by nurses, doctors, hospitals, social workers, insurance companies, community leaders. It requires flexibility of medical approach and technique—not the rigidity inherent in government-controlled programs. The Forand bill is simply bad medicine. (2) It is a political approach to a health problem developed by non-medical people. (3) A nationalized program of this sort would weaken the patient-physician relationship. (4) Political abuses and administrative waste would be predictable.

### 6. *How would the vast majority of Americans—those who aren't receiving social security payments—be affected by passage of the Forand bill?*

Adversely. Overuse of hospitals by social security claimants—that is, hospitalization not warranted by medical necessity—is certain to occur. The effect of this would be to limit the number of beds available for the acutely ill of all ages within all communities. So-called “free” hospitalization on any extensive scale—“free” only to the extent that the taxpayers pay for it—could create a dangerous overcrowding of available space. The record of similar legislation in other countries bears this out unarguably.

### 7. *Would the patient be free to choose his own physicians, hospital or nursing home?*

No. Although at first glance the bill appears to guarantee the patient's right to choose any hospital, surgeon or nursing home he wants, this apparent freedom of choice is deceptively limited. For the patient is required to select a hospital, nursing home or physician under contract to the federal government. In emergencies only could the patient choose a surgeon not participating in the plan.

### 8. *What hospital and nursing home services would be provided under the Forand bill?*

The measure provides a combined total of 120 days hospital and nursing home care each year, but with a maximum of 60 days hospitalization. However, before a person can receive nursing home care, he must be transferred there from a

(Continued on page 314)

The authors describe their experiences with introducing contrast media directly into the ventricular cavity by puncture of the ventricular wall by needle.

## Transventricular Aortography\*

FELIX A. HUGHES, M.D., ROGER E. CAMPBELL, M.D., and  
JOHN J. McCAUGHAN, JR., M.D.,† Memphis, Tenn.

The roentgenographic visualization of the aorta and great vessels is a valuable diagnostic procedure that also aids in determining the feasibility of surgical correction of lesions in these vessels. Because accurate anatomic diagnosis is desirable, and since neither angiocardiology<sup>5,6,11</sup> or retrograde arterial catheterization always show well the true anatomic or pathologic state of the aorta,<sup>7,10</sup> percutaneous left ventricular puncture<sup>3,8,9,12</sup> was utilized for introducing the dye.

The Valsalva maneuver, as described by Boerema,<sup>2</sup> causes an increase in intrapulmonary pressure, thereby markedly reducing cardiac inflow and outflow with reduction of systemic blood pressure. When this maneuver is employed simultaneously with introventricular injection of Urokon, the dye is more concentrated, moves at a slower rate, and thereby produces better visualization of the aortic arch and its principal branches.

*Technic.* The procedure is carried out in the radiology department. The patient is placed in the right posterior oblique position with a multiple-exposure film changer\*\* under the chest. An intravenous solution of 5% dextrose in water is started and an intravenous sensitivity test performed using 1 cc. of 70% acetrizoate (Urokon). The cardiologist continuously monitors the electrocardiographic tracings. Ten minutes after the test dose of the dye, if no reaction has occurred, general anesthesia is induced with thiopental sodium (Pentothal) and

succinylcholine chloride (Anectine). An endotracheal tube is inserted and the anesthesia supplemented with nitrous oxide and oxygen. After the left lower chest is prepared, a large-bore, thin-walled, 18-gauge needle is inserted near the xiphoid process directed cephalad, slightly posteriorly and to the left. The needle will then be pointing in the direction of the left shoulder. A resistance can be felt as the diaphragm is penetrated, and when the myocardium is reached a few extra systoles usually appear on the electrocardiogram. The needle is inserted for about 3 centimeters more and the stylet removed. Rhythmic ejection of bright red blood indicates that the needle point is free in the cavity of the left ventricle. Using thick-walled rubber tubing approximately two and a half feet in length, a syringe containing 25 cc. of 70% sodium acetrizoate is connected to the needle. The anesthetist compresses the anesthesia bag with enough force to maintain a pressure of 40 cm. of water. The Valsalva is maintained 45 seconds for the dye injection. After 1 cc. of Urokon, the electrocardiogram is closely monitored for any alteration. If no arrhythmia occurs, the remaining dye is injected manually as rapidly as possible. The first roentgenogram is exposed near the completion of the injection and is followed by twelve exposures at 2-second intervals. The Valsalva maneuver is released and normal respiration begun after four films have been taken (8 seconds after completing the injection). The needle is then withdrawn.

*Complications.* Fifty percutaneous left ventricular punctures have been done. There has been no mortality due to the procedure and only four complications occurred. In 2 patients, a pneumothorax developed and in 2 other patients the dye was inadvertently injected into the myocardium. This caused a severe ventricular tachy-

\*Read at the meeting of the Tennessee Chapter, American College of Surgeons, April 13, 1959, Memphis, Tenn.

†From the Thoracic and General Surgical Sections, Veterans Administration Medical Teaching Group Hospital, Memphis 15, Tenn.

\*\*Sanchez-Perez Automatic Serialograph Corporation.

cardia for several minutes which then reverted to a normal rhythm.

Using this technic, the ascending aorta, aortic arch with its great vessels and the descending thoracic aorta can be visualized. Frequently, the aortic valves can also be seen.

Figure 1 shows the visualization of the aorta that can be obtained by transventricu-



FIG. 1.

lar aortography. A large aneurysm of the arch and widely dilated arch are present.

Figure 2 shows lack of filling of the descending aorta due to the presence of coarctation of the aorta.

**Contraindications.** Adequate personnel and equipment are essential. When the diagnosis can be made by other procedures, transventricular aortography should not be performed.

Children have a ventricular capacity of small size, increasing the hazard and probably contraindicating the procedure.

Adults with a rapid heart rate or a recent coronary infarct are not suitable candidates for the operation.

**Summary and Conclusion.** Cardioangiograms have proved effective in establishing accurate anatomic diagnosis in lesions of the

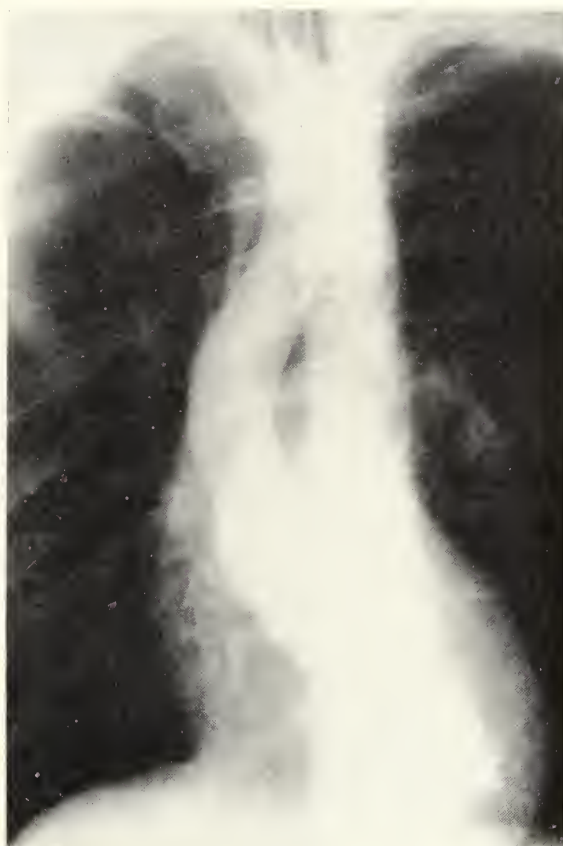


FIG. 2.

thoracic aorta and its branches when routine studies have been inadequate.

Percutaneous left ventricular punctures have been carried out 50 times without mortality.

The four complications encountered did not cause any morbidity.

### References

1. Nunez, V. B., and Ponsdomenech, E. R.: Heart Puncture; Cardioangiography: Clinical and Electrocardiographic Results, *Am. Heart J.* 41:855, 1951.
2. Boerema, I., and Blockman, J. R.: Reduced Intrathoracic Circulation as an Aid in Angiocardiography: An Experimental Study, *J. Thoracic Surg.* 30:129, 1955.
3. Brock, R., Milstein, B. B., and Ross, D. N.: Percutaneous Left Ventricular Puncture and the Assessment of Aortic Stenosis, *Thorax* 11:163, 1956.
4. Gregg, H. A., Smith, P. W., Wilson, C. W., and Bull, J. W.: Cardioangiography, *Radiology* 65:368, 1955.
5. Dotter, C. T., and Jackson, F. S.: Death Following Angiocardiography, *Radiology* 54:527, 1950.
6. di Guglielmo, L. D., and Guttadauro, M.: A Roentgenologic Study of the Coronary Arteries in the Living, *Acta radiol. Supp.* 97, pp. 1-82, 1952.



7. Helmsworth, J. A., McGuire, J., and Felson, B.: Arteriography of the Aorta and Its Branches by Means of Polyethylene Catheter, *Am. J. Roentgenol.* 64:196, 1950.

8. Ponsdomenech, E. R., and Nunez, V. B.: Heart Puncture in Man for Diodrast Visualization of the Ventricular Chambers and Great Arteries, *Am. Heart J.* 41:643, 1951.

9. Smith, P. W., Wilson, C. W., Cregg, H. A., and Klassen, K. P.: Cardioangiography, *J. Thoracic Surg.* 28:273, 1954.

10. Sussman, M. L., and Brahms, S. A.: Interpretation of Normal Cardiovascular Angiograms with a Discussion of Common Errors, *Am. J. Roentgenol.* 66:29, 1951.

11. Sutton, G. C., Wendel, G., Wedell, H. G., and Sutton, D. C.: An Evaluation of Intracardiac Angiocardiography, *Am. J. Roentgenol.* 67:596, 1952.

12. Wilder, R. J., Moscovitz, H. L., and Ravitch, M. M.: Transventricular and Aortic Angiocardiography and Physiologic Studies in Dogs with Experimental Mitral and Aortic Insufficiency, *Surg.* 40:86, 1956.

## Facts About the Forand Bill

(Continued from page 311)

hospital for further treatment of the same illness. Care would not be authorized in a mental or tuberculosis hospital.

9. Who would set fees for physicians, and charges for hospitals and nursing homes?

An agency of the federal government.

10. Who would administer the program and stipulate the type of care to be provided?

An agency of the federal government.

11. What effect would the Forand bill have on voluntary health insurance?

It would undermine voluntary health insurance and gradually replace it, because few people will be willing or able to carry both government and private plans. Yet the health insurance industry has proved its ability to handle the extensive needs of our growing population. About 43% of our over 65 citizens are now covered by health insurance. Much of this coverage has been achieved during the past five or six years. This rapid growth in voluntary insurance can be expected to continue so long as our senior citizens are free to choose—from an increasingly wide variety of policies—the sort of health coverage best suited to their individual needs. According to the Health Insurance Association of America, 75% of our older people who need and want such protection will be covered by voluntary health insurance by 1965; and 90% by 1970.

12. Would the Forand bill help our sick but indigent older citizens?

No. Most of our indigent are not covered by

the Social Security system. Hence they would receive no assistance under the Forand measure. They now receive the care they need through private, fraternal and religious organizations; and welfare programs paid for by federal, state and local governments.

13. How reliable are the statistics on the health problems of the aged?

AMA has studied those presently available and found them to be neither conclusive nor complete.

14. How is it possible, then, to propose far-reaching legislation aimed at solving the health problems of the aged?

It isn't. It is neither practical nor sound planning. Any attempt to meet the challenge of a health program for the aged without more accurate knowledge of the problem's dimensions is akin to prescribing for the patient without first making a diagnosis.

15. If the Forand bill were to become law, is it likely that compulsory health insurance would later be extended to include all segments of our population?

Yes. It is most likely. The bill's supporters have indicated they want to see government-regulated health care extended to everyone eventually. The next step, if the Forand bill established the precedent, would be to lower the age eligibility and broaden the field of coverage. This process could be expected to continue, session after session, until every American had been placed under a compulsory, government-run health insurance program. The important thing, as the bill's supporters see it, is to set the precedent.

In the recent years doctors have needed to revamp their thinking completely in dealing with the problems of peripheral vascular disease. The remarkable advances in the surgical treatment of vascular disease demand early attention to such lesions as the possible cause of presenting symptoms, the proper diagnosis and the initiation of moves to provide adequate and early definitive treatment.

## The Choice of Therapy For Peripheral Vascular Disease\*

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Recent rapid advances in the diagnosis and surgical treatment of peripheral vascular disease are now well recognized. Descriptions of this progress have, however, often centered upon technical methods and immediate results, and considerably less attention has been paid to the underlying problem of indications for surgical intervention, adjuvant methods and comparison between nonsurgical, indirect and direct, surgical therapy.

The well known natural history of certain lesions leaves little doubt that direct surgery is useful if it salvages any appreciable number of patients. Ruptured abdominal aortic aneurysm, for instance, so uniformly results in early death that the advent of replacement by grafts has led to general acceptance of the bleeding aneurysm as an immediate indication for surgical resection even in the face of considerable mortality.

The following is a consideration of certain aspects of several common peripheral vascular lesions with an attempt to develop a rational approach to recommendations for particular surgical or nonsurgical treatment.

### Aneurysms

*Natural History As It Effects The Choice Of Therapy.* While the actual cause of the original weakness in the wall of an artery which leads to aneurysm formation is as poorly understood as is the basic cause of atherosclerosis, common association has led to general understanding of the atherosclerotic origin of most arterial aneurysms (excepting the occasional instance of my-

cotic, syphilitic or post-traumatic aneurysm). Most of these occur in the distal abdominal aorta with somewhat less common sites being the popliteal, common femoral and iliac arteries. The frequent multiplicity of aneurysms is increasingly being recognized. Figure 1. diagrammatically illustrates common lesions.

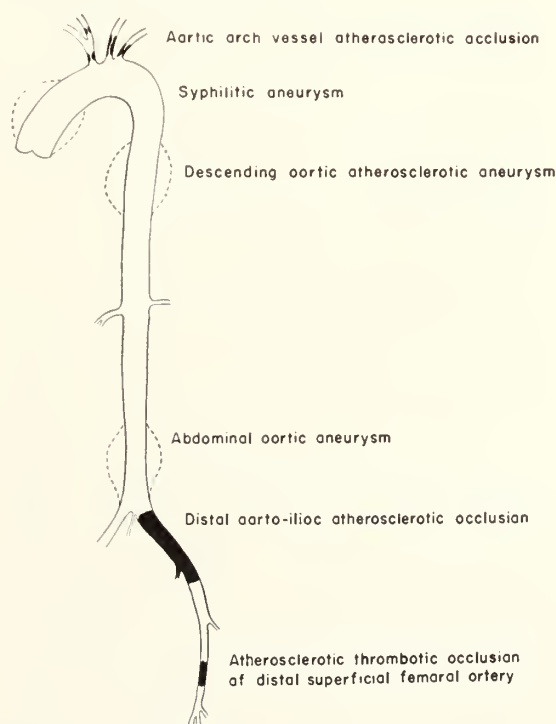


FIG. 1. Sites of common peripheral arterial lesions in the aorta and its large vascular branches.

Whether the initial damage to the arterial wall is due to post-stenotic dilatation, anoxia of the wall due to changes in the vasa vasorum, or whether it is due to intimal atherosclerosis with ulceration is not completely clear. However, it is recognized that once the initial dilatation has occurred

\*Presented to the Middle Tennessee Medical Association at Shelbyville, Tenn., May 21, 1959.

there is a progressive increase in the size of the aneurysm. This, of course, may be intensified by systemic hypertension causing increased strain on the aneurysmal wall. It is quickly intensified as the radius of the vessel increases, according to Laplace's law.\*

(3) On the other hand, it is decreased by intraluminal thrombosis which decreases the radius and which is commonly found in aneurysms.

Study of series of aneurysms which have not been operated upon lead to the conclusion that there is considerable risk associated with the continued presence of an aneurysm and that this is chiefly related to the probability of perforation of its wall with bleeding. Such rupture occurring in a thoracic or abdominal aneurysm leads to severe, rapid blood loss with ensuing shock and renal shutdown. Perforation of a peripheral aneurysm often results in tamponade within the tissues so that the viability of the entire limb is threatened.

Kampmeier<sup>18</sup> in 1936 summarized 313 cases reported to that date and added 73 new abdominal aneurysms (chiefly proximal and syphilitic). The high death rate (66% died while in the hospital) and recognition that this was due to rupture was emphasized. Later reports (2, 26) have corroborated this danger of aneurysms.

In 1950, Estes<sup>14</sup> reported the increasing death rate with each year's passage (33% at 1 year, 42% at 2 years, 81% at 5 years and 100% at 10 years) in 102 untreated abdominal aneurysms. In a series of 68 autopsies of patients with abdominal aortic aneurysms at Kings County Hospital, Brooklyn (1940-1955), Gliedman, Ayes and Vestal<sup>15</sup> reported that only 4% died of completely unrelated disease. Forty-nine per cent of those patients died of rupture of an abdominal aneurysm and the remaining percentage from related causes. Symptomatic aneurysms were more dangerous than asymptomatic ones, and 30% of patients died within a month of initial symptoms while 80% died within a year of first symptoms! Such experience with nonoperative management leads to the conclusion expressed by de-

Takats that, "since aneurysms by their own expansile natural history either rupture or thrombose, their recognition is an indication for their elimination."<sup>11</sup>

*Features of the Clinical Syndrome.* The ordinary signs and symptoms of aneurysms require no comment here. It should however be recognized that aneurysms are often found in association with atherosclerotic occlusive disease in a more distal portion of the arterial system and that signs due to such occlusion may at times be more manifest than those of the aneurysm. Symptoms such as calf claudication may trouble the patient considerably more than what appears to be a relatively asymptomatic aneurysm, but should not delude the clinician into false evaluation of the relative importance of the two associated lesions. The prospect of aneurysmal rupture ordinarily outweighs symptoms due to peripheral occlusion if the nutrition at rest is good. Initial therapy should be directed toward the aneurysm.

*Case.* J. M. C., a 64 year old white man, was considerably more concerned about coldness and claudication in the left leg than with the relatively asymptomatic aneurysm which had been known to exist for a year. Resection of the distal abdominal aortic aneurysm on October 21, 1958, was uneventful and circulation was restored by placing a crimped Nylon graft between the proximal aorta and the common iliac artery on the right and the external iliac artery on the left. Following an uneventful convalescence, he returned to his usual work, ceased worrying about the "throbbing" in his abdomen and gained 30 pounds. Six months after operation, the claudication of the left leg was unchanged and arteriographic evaluation of peripheral arterial reconstruction was advised.

*Comment.* The constantly threatening aneurysm was removed rather than attacking the symptomatic superficial femoral atherosclerotic occlusion initially, since the aneurysm threatened life while the femoral block had diminished leg function but did not immediately threaten either life or limb.

The postoperative cessation of vague, undiagnosed abdominal pain as well as of undiagnosed melena leads to the conclusion that abdominal aneurysms may be the cause of these symptoms. The over-riding position of the transverse portion of the duodenum where it crosses the swelling of an abdominal aneurysm at times leads to duodenitis with mucosal bleeding and occasionally with rupture into the duodenum. (Fig. 2.) Such duodenal symptoms should

\*The tension (T) in the wall of a cylinder is equal to the pressure (P) within multiplied by the radius (R) so that

$$T = P \times R$$





### DUODENAL SYMPTOMS DUE TO UNDERLYING ANEURYSM

- |             |                             |
|-------------|-----------------------------|
| 1. BLEEDING | } DUODENITIS                |
| 2. PAIN     |                             |
| 3. SHOCK    | } PERFORATION INTO DUODENUM |
| MELENA      |                             |

FIG. 2. Diagrammatic illustration of how an atherosclerotic abdominal aneurysm may cause duodenal symptoms.

direct attention to the aneurysm and the need for its removal.

*Case.* H. P., a 69 year old white man was studied by preoperative gastric and colonic radiography, as well as other examinations, to determine the cause of asymptomatic but recurrent melena. Because of completely negative studies, laparotomy was performed (elsewhere) which failed to reveal any cause of the bleeding but disclosed a previously undetected abdominal aortic aneurysm underneath the transverse duodenum. Following exploration the abdomen was closed. Melena continued recurrently and re-exploration was requested. At a second operation the aneurysm was resected and a graft placed without difficulty. Visceral exploration at that time again failed to show any cause for bleeding, but it was noted that the transverse duodenum was densely adherent to the bulge of the aneurysm and required sharp dissection for its removal. Following aneurysmectomy there has been no recurrence of melena (18 months follow-up).

*Comment.* This and a similar case plus the personally observed (as well as reported) instances of aneurysmal rupture into the duodenum indicate duodenal inflammation as an occasional source of gastrointestinal bleeding even prior to actual perforation of the aneurysm into the viscus.

Incidental operative discovery of a small abdominal aneurysm, either at the time of laparotomy for acute abdominal pain or on

an elective basis, should lead to early plans for elective aneurysmectomy and graft replacement. Although the great majority of aortic aneurysms do not involve the important proximal arteries (renal, superior mesenteric and celiac), it is reassuring if the original exploring operator checks upon the size of the aneurysm and upon its cephalad extension at the time of initial laparotomy. Unless some degree of perforation has already occurred, it is usually preferable to prepare the patient for a later elective aneurysmal resection.

*Case.* R. T. S., a 60 year old white man was operated upon for left upper quadrant pain and irregularity on pyelogram. At operation, the arterial supply to the left kidney was anomalously double and originated in the wall of the aneurysm. During the course of the exploration, technical difficulty ended in left nephrectomy for control of bleeding from one of the renal arteries. Following this, consultation was requested (while the abdomen was still open) regarding removal of the aneurysm which did not involve the right renal arterial supply. A later resection of the aneurysm was suggested. Postoperatively, the patient continued to have the same pain for which he had originally been operated upon. Renal studies indicated excellent function of the remaining right kidney. Six weeks after the original laparotomy and left nephrectomy, the aneurysm was resected using continuous spinal anesthesia with slow clamping of the aorta proximal to the aneurysm to furnish every possible protection to the kidney. The postoperative convalescence was uneventful and the patient's pain was relieved (10 month follow-up).

*Comment.* The previously unsuspected aneurysm was causing the peculiar left upper quadrant symptoms as evidenced by their postoperative cessation. Secondary aneurysmectomy was preferred to removing it at the end of a two-hour exploration and nephrectomy.

*Contraindications to Aortography.* Since the injection of radiopaque material does not necessarily delineate the upper margin of an intra-abdominal aneurysm (and since this can be ascertained much better at laparotomy) and with increasing knowledge of the hazards of intra-aortic injection of radiopaque materials, there appears to be no reason to perform routine aortography for patients with abdominal aneurysms. Intra-thoracic aneurysms constitute a different indication for aortography because of the necessity for determining the extent of the lesion, the approach to it and needed technic by proper x-ray studies.

*Risks of Nonoperative vs. Operative Management.* The risk of resection of aneurysm with graft replacement varies with the position of the aneurysm in the arterial system. (Fig. 3.) Resection of peripheral ar-

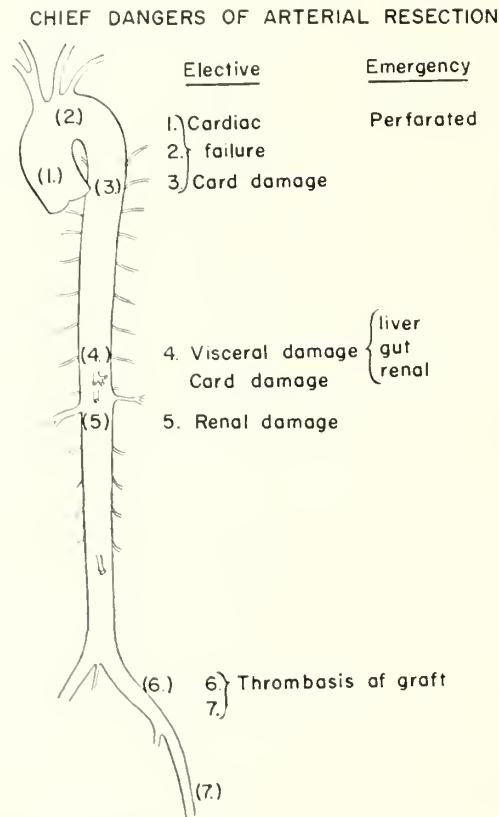


FIG. 3. Summary of the chief risks of major arterial resection indicating the somewhat different dangers at different sites.

terial aneurysms is ordinarily not particularly dangerous to life, and the main difficulty is associated with the necessity for careful removal and graft replacement to assure proper arterial blood supply to the extremity. Increasing experience with peripheral vascular replacement has greatly decreased the risk of loss of life or limb.

The chief risk of resection of abdominal aortic aneurysm (aside from the unusual blood loss) lies in the renal effect of sudden aortic cross-clamping with resultant renal arterial hypertension. The development of the technic of gradual aortic occlusion or of drug-induced reduction of arterial pressure at the time of cross-clamping has considerably lowered the incidence of this potentially dangerous renal complication. It is similarly important to release the aorta slowly and to support the systemic blood

pressure properly at the conclusion of grafting since similar renal insufficiency may be produced by renal arterial hypotension. Leaving a portion of the posterior aneurysmal wall intact prevents injury to the vena caval and has decreased that risk.

The relatively low risk of elective aortic aneurysmectomy increases sharply if operation is delayed and performed after rupture has caused shock and renal shut-down. The importance of the renal status to ultimate survival makes immediate operation mandatory and explains why death often occurs despite a technically successful grafting operation. Of 11 ruptured aneurysms personally observed, 4 of the 7 who still had urinary output when operated upon lived, while none of the 4 with preoperative anuria survived. The overall 36% survival makes operation upon the already ruptured aneurysm worthwhile but is obviously much more risky than is elective resection.

The risk to the spinal cord by deprivation of blood supply during abdominal aneurysmectomy is essentially nil because of the more cephalad distribution of the vessels. (1) Earlier difficulties with distal anastomotic thromboses threatening viability of an extremity have to a considerable degree been eliminated by increasing experience and knowledge of the necessity to place the distal limb of the graft into a widely patent artery. At times, this has dictated end-to-side anastomosis to the common femoral or even to the popliteal artery following resection of an aortic aneurysm.

The considerably greater risk of resection of aneurysms of the thoracic aorta is recognized (8, 13, 16) and has not been overcome despite the use of hypothermia and vascular shunts, with or without pumps, for protection against central hypertension as well as spinal cord ischemia during resection and grafting of the thoracic aorta. Fortunately, only a minority of aneurysms occur in this region. An even smaller number involve the important arteries just distal to the diaphragm (celiac, superior mesenteric and renal arteries). Ingenious methods of temporary by-passing and of the proper sequence of the several anastomoses have made resection of the occasional aneurysm involving these vessels feasible but with an increased risk over aneurysms which do

not involve these vessels. Fortunately most do not.

*Choice of Replacement Material.* A variety of synthetic straight and Y tubes are now available for replacement of arteries. General experience has shown that aortic replacement with a large synthetic tube is generally successful and that a synthetic tube is preferable to a homologous arterial graft because of late degeneration of those transplants.<sup>27</sup> There is increasing reluctance to use homologous arterial transplants and widespread acceptance of the good results of synthetic tubes used to replace large arteries.

### Peripheral Occlusive Disease

*Relation of the Clinical Syndrome to Peripheral Arterial Occlusion.* The history of most people with arterial insufficiency of the legs centers about pain. Calf claudication after walking one to several blocks (and ceasing with rest) is well known. Such claudication in an extremity which is relatively well nourished and asymptomatic while at rest points toward occlusion of a large vessel with good collaterals so that there is sufficient circulation until stress occurs. The most common location for such atherosclerotic occlusion is at the hiatus of the adductor magnus muscle (Fig. 1), a palm's breath above the knee joint.<sup>21, 24</sup> Because there is a high incidence of patency of the distal arterial system, it is often possible by direct surgery either to reopen the thrombosed vessel by thromboendarterectomy or to place a by-passing graft about the block and relieve symptoms. DeBakey and associates<sup>10</sup> reported experience with 353 cases of femoro-popliteal occlusion and found a distal segment suitable for grafting in 90% of those with good circulation at rest, and in 50% of those with more advanced disease. Even legs with distal (toe) pregangrenous changes or limited gangrene should be investigated for the possibility of salvage by direct arterial surgery. Roberts and Hoffman<sup>25</sup> were able to attempt grafting in 30% of such people and had early success in 19 of the 21 operations done (with 3 later failures). Preampputation arteriographic study or gross surgical examination of the popliteal artery will save some extremities otherwise doomed to amputation.

Newer information from arteriography and operation show the fallacy of the previous idea of the common incidence of Buerger's thromboangiitis obliterans. Younger patients with arterial occlusion tended previously to be placed into this category but most of them have some form of atherosclerosis of a major vessel. True Buerger's disease is very rare.<sup>17</sup>

The occurrence of thigh or buttock claudication is not well recognized and often masquerades as back or joint disease or other difficulty when examination of the pulses would indicate block in the distal aorto-iliac arterial system. This is usually atherosclerotic. It is much more common in men than women. The occurrence of sexual impotency is not so common as was generally believed. High degrees of stenosis or complete block may exist without a change in the sexual pattern.

*Case.* J. K., a 45 year old white male physician had undergone regular yearly physical examinations as well as orthopedic consultation without discovering the cause of low back pain and thigh as well as increasing calf claudication. There were no sexual changes. At his 1956 regular examination, it was noted that there were no pulses palpable in the lower extremities. Operation disclosed extensive distal aortic stenosis extending proximally to the renal arteries so that proximal endarterectomy as well as distal aortic resection was necessary. Distally, the replacing graft was sutured to the right external iliac to allow back flow to the hypergastric on that side and was sutured end-to-end to the left common iliac. Following a postoperative course marked by severe neuritic pain in both lower extremities, the patient has been rehabilitated and returned to work and ordinary activity with relief to symptoms (2 1/2 year follow-up).

*Comment.* The true cause of his back symptoms was aorto-iliac stenosis. The graft replacement has relieved this.

*The Importance of Diagnostic Arteriography.* While an educated estimate of the distal arterial circulation may often be made on the basis of physical examination, it is actually impossible to delineate accurately the extent of the occlusive lesion or the reconstitution and patency of the distal arteries without the injection of radio-paque material.<sup>10</sup> Operative exploration is obviously limited to whatever part of the arterial system is exposed in the wound and may fail to detect a block just distal to the actual operative exposure so that radiologic



examination is quite necessary to proper management. Since peripheral arteriography is a relatively safe procedure which can often be done on an out-patient basis, proper preoperative arteriography should be performed to allow full consideration of all factors prior to actual operative intervention. (Fig. 4.) While it is possible to combine arteriography with surgery, only a small amount of time and inconvenience is saved. Against this small advantage is



FIG. 4. (a) Preoperative arteriograms showing atherosclerotic occlusion of distal superficial femoral artery with excellent reconstitution of popliteal artery and run-off system. (b) Postoperative arteriogram on 13th day showing patent autogenous vein graft by-passing occluded artery and delivering blood into popliteal artery at site of lower arrow.

the disadvantage of the necessity for an immediate decision with no time for meditation and reflection on actual operative procedure.

*The Role of Sympathectomy.* For the past 30 years, there has continued to be vigorous debate on the merits of lumbar sympathetic ablation. Even today, completely opposite viewpoints are expressed by individuals after their own careful study of the results of lumbar sympathectomy.<sup>23, 28</sup> The continuing debate leads to the conclusion that there is, at the moment, no really objective method by which the results of sympathectomy may be accurately measured. Both the patient's and surgeon's optimistic attitudes are greatly reflected in claudication time or distance studies so that these become quite subjective. Despite hopes that plethysmographic or skin temperature studies would aid in the prediction of the result of sympathectomy, such laboratory tests have not proved to be of more benefit than a careful clinical appraisal based upon previous experience and observation.

Correlation of the changes in skin temperature and indicated blood flow in the toe (by the plethysmographic method) was done in 330 tests on 16 normal subjects as indicated in figure 5. The shape of the curve indicates that at low temperatures and blood flows, there is a considerably greater change in the temperature than in the blood flow while the reverse is true at high temperatures and flows. Since patients with peripheral vascular disease fall toward the low end of the curve it follows that testing by release of vasoconstrictor nerves (electric blanket on chest and abdomen, posterior tibial block or lumbar paravertebral block) produce greater changes in skin temperature than blood flow changes so that this provides more information. In a 22 patient series followed by multiple examinations (up to 599 days) after lumbar sympathectomy, it was found that only 14 of the 22 had postoperative temperature and blood flow studies which were in the range indicated by the preoperative test. The other 8 fell well outside that range. This indicates that clinical prediction is as likely to be successful as are these particular tests.

Since there is increasing evidence that sympathectomy is not particularly beneficial

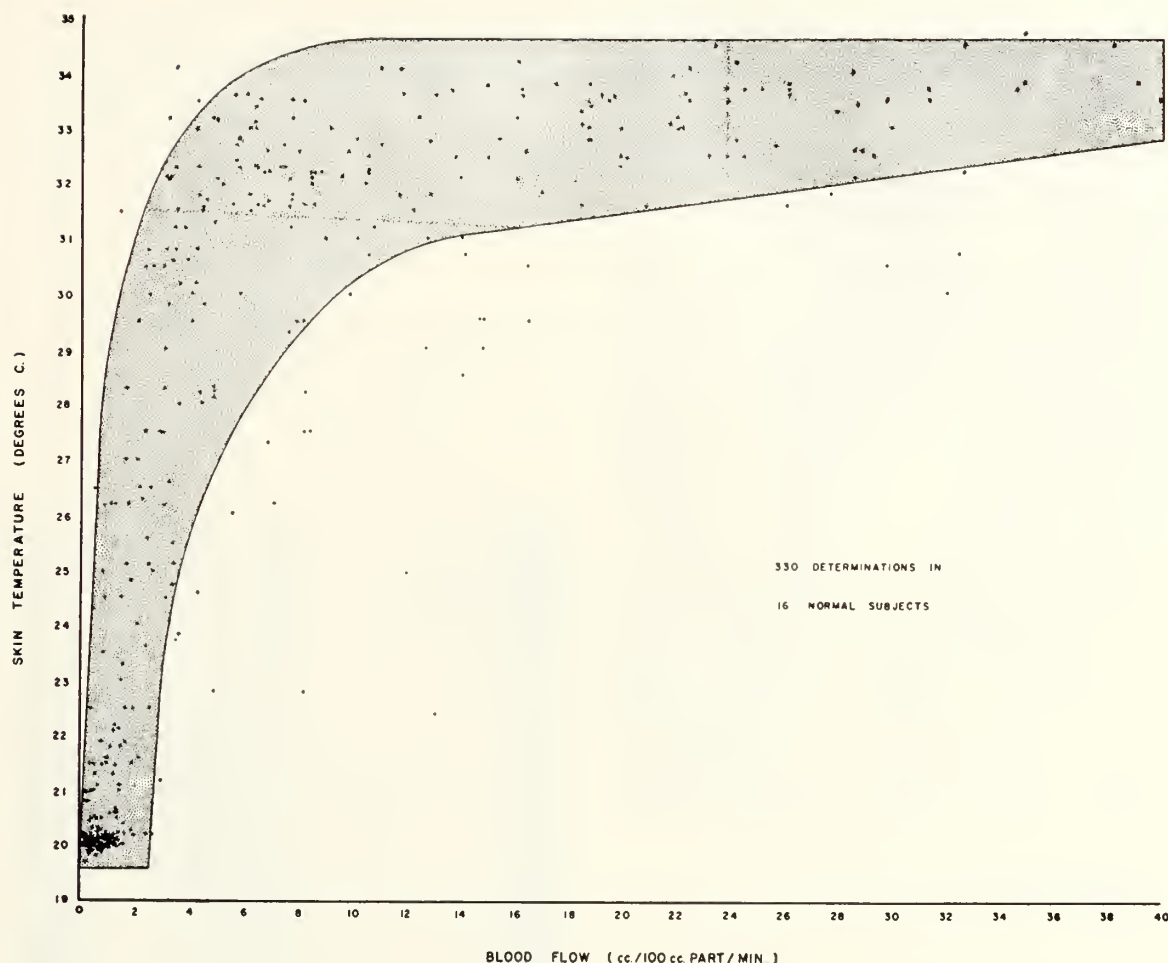


FIG. 5. Correlation of skin temperature determinations with blood flow estimations (by venous occlusion plethysmography technic) using 330 determinations in 16 normal subjects to illustrate the normal distribution pattern.

to calf claudication and that it chiefly redirects blood flow through the skin, it has become increasingly reserved for pregangrenous skin malnourishment and less used for claudication.

*Thromboendarterectomy vs. Bypass Shunt Grafting.* The usefulness of thromboendarterectomy for short stenoses of large vessels such as the aorta and iliac arteries is generally accepted<sup>10</sup>, while similar endarterectomy for more peripheral (and usually longer) occlusive lesions has been productive of considerably poorer results. Despite the excellent results of a few groups such as Cannon and associates<sup>1</sup>, the general difficulty with such procedures has prevented their widespread adoption.

The original enthusiasm for by-passing shunt grafts in the legs has been considerably dampened in some quarters by follow-up studies showing a relatively high inci-

dence of later occlusion. To date, it has been difficult to separate technical failures from failures due to progression of the disease itself. Homologous arterial degeneration occurring with the passage of time has undoubtedly contributed a large number of failures simply due to this material. Despite excellent reports of early success with synthetic materials<sup>9</sup> there is some doubt as to what long-term follow-up of these will show particularly in view of the quite thick neointima with such prostheses invariably develop.

Reversed autogenous vein grafts constitute a continually viable grafting material and one which I believe will prove to be the material of choice.<sup>6, 7</sup> Linton has recently indicated a similar preference for peripheral reconstruction by autogenous vein graft.<sup>22</sup> The operative technic requires delicacy but offers more chance of continued





FIG. 6. Operative view of anastomosis between autogenous (saphenous) vein graft and common femoral artery of a 58 year old man. The suture material is 5-0 silk applied in over-and-over fashion with an interrupted everting mattress suture at either end. Clamps have been removed and arterial blood is flowing through the graft.

patency after accomplishment. Figure 6 shows a completed autogenous (saphenous) vein graft anastomosed obliquely to the side of the common femoral artery. Figure 4 (b) shows a postoperative arteriogram of such a vein graft. At present, further long-term studies are necessary to determine properly whether endarterectomy or peripheral shunt grafts will prove to be the procedures of choice and which of the currently available materials will be most suitable.

With the realization that today's ideas are apt to be completely overturned by tomorrow's knowledge, it is my current impression<sup>6,7</sup> that peripheral thromboendarterectomy is best reserved for relatively short femoropopliteal lesions and that longer ones should be managed by long shunt grafts from common femoral to popliteal artery to by-pass completely the femoropopliteal region which is most commonly involved with atherosclerotic thrombosis.

Attention to every seemingly minor detail in such peripheral procedures is to be continually stressed, since peripheral direct arterial surgery demands a considerably more refined technic than does the aorta and iliac system.

*Case.* R. M. S., a 51 year old white man, in May 1958, was found by arteriography to have a one-inch occlusion of the distal superficial femoral artery with symptoms of left calf claudication. Thromboendarterectomy was performed (Fig. 7, a) with immediate pulses. Arteriogram on the 5th postoperative day (Fig. 7, b) showed a widely patent artery. Eight months later, there was a sudden return to the preoperative condition of claudication with a relatively cool foot. A new arteriogram showed recurrent occlusion at the site

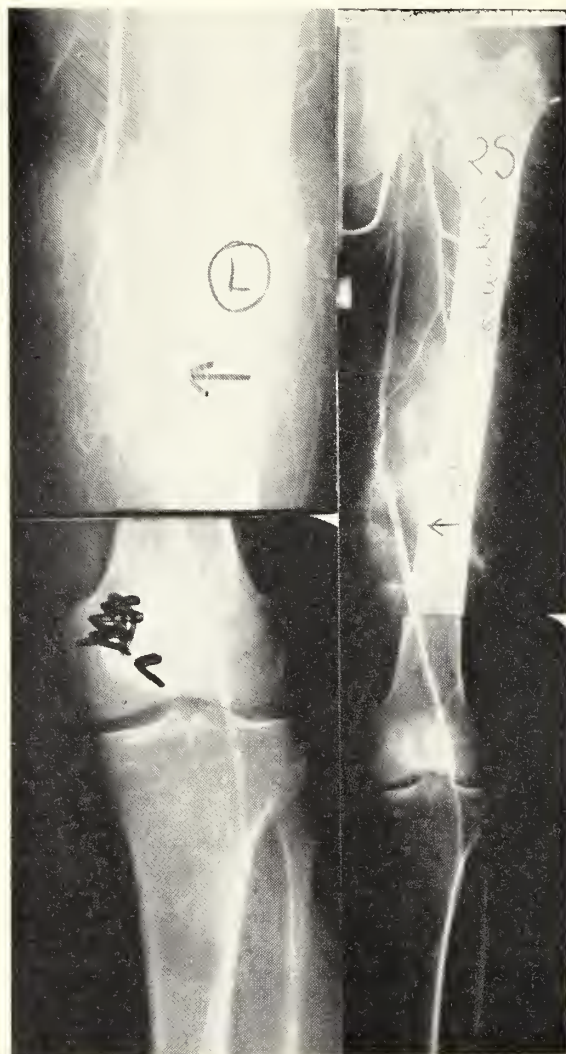


FIG. 7. (a) Preoperative arteriograms showing a very short atherosclerotic occlusion of the distal superficial femoral artery at the hiatus in the adductor magnus muscle. There is excellent run-off circulation and thromboendarterectomy was performed. (b) Postoperative arteriograms on the 5th day showing wide patency at site of previous occlusion following thromboendarterectomy.



of previous thromboendarterectomy (not illustrated). On January 19, 1959 a left autogenous vein graft was placed between the common femoral and popliteal arteries. A similar graft was placed on the right leg on April 10, 1959, for a symptomatic superficial femoral arterial block.

*Comment.* Recurrence of thrombosis despite x-ray proven successful thromboendarterectomy led to necessity for by-pass grafting. The other side was similarly by-passed a little later.

*Nonoperative Management.* Principles of care of the feet and legs where circulation is compromised are widely recognized. Attention is directed to the excellent discussion of this by the late Dr. Edwin P. Lehman<sup>20</sup>, in which he particularly pointed out the necessity to prevent the metabolic need of the distal part of the extremity from ever reaching the critical level at which it could not be satisfied and at which gangrene would occur. Activity, local warming or any inflammatory process are particularly prone to increase the metabolic need, and it is for this reason that any ulcer, ingrown nail, blister or other minor lesion of the toes or feet in such a patient demands immediate and scrupulous attention even to the extent of insisting upon bed rest.

#### Peripheral Arterial Embolism

*The Similarity of Embolism and Acute Thrombosis.* Experience with atherosclerotic occlusion points to the conclusion that many acute vascular blocks which were previously thought due to emboli are actually due to acute thrombosis of a vessel which had been slowly undergoing atheromatous changes with stenosis for a considerable period of time. Previous history of peripheral vascular insufficiency versus some central lesion likely to result in thrombosis giving rise to embolism (such as atrial fibrillation, rheumatic mitral stenosis, myocardial infarction) is important in determining the likely diagnosis.

*Case.* A. B., a 65 year old white woman, 2 weeks prior to admission was found by her referring physician to have acute symptoms in the left lower leg which did not result in more than temporary compromise of circulation. Twenty hours prior to admission there was a sudden occlusion of the aortic bifurcation as evidenced by symptoms in both lower extremities. There were no pulses distal to the aorta. The left lower leg was cyanotic and the right lower leg pale and cadaveric. There was no obvious source of ar-

terial embolism. At laparotomy (20 hours after onset), it was discovered that acute thrombosis of the distal aorta and iliac vessels had occurred. The aorto-iliac bifurcation was resected and a crimped Nylon bifurcation graft was placed from the aorta just below the renal arteries end-to-end to the right common iliac, and end-to-side to the left superficial femoral artery. Following this the right femoral artery was exposed, opened and the distal thrombus was removed with an endoarterial polyethylene cannula. The left distal femoral artery could not be cleaned out well although the cannula was passed and attempts were made. Postoperatively, the right lower extremity regained pulses and viability. The left leg already had shown beginning demarcation preoperatively; this continued and supracondyle amputation was performed on the fifth postoperative day. Convalescence was otherwise uneventful.

*Comment.* This acute thrombosis was overlaid on extensive aorto-iliac atherosclerosis, and required resection and grafting as an emergency procedure to salvage life and limb. The left lower extremity had essentially been lost prior to operation and was not saved. When the patient was last examined 6 months after operation, she was in good condition.

*Importance of the Time Element.* A peripheral embolus initially is not attached to the wall, and remains in place only by virtue of its size in relation to the lumen of the vessel or because it is hanging over a vascular bifurcation. With time, however, the intima of the artery becomes involved and the original embolus becomes attached and a proximal thrombus as well as distal thrombus may form. Immediate surgical removal of peripheral emboli is therefore of considerable importance since good results are dependent upon removal while the situation is reversible. The ability to clean out intra-arteria thrombi on both the proximal and distal side of the embolus with polyethylene tubes has extended operability of peripheral emboli and an attempt to remove clot should be made even though the patient is beyond the golden period of the initial eight hours after embolization. Operability is further extended by availability of technics to graft or by-pass some extensive emboli.

*Common Errors in Management.* Undue reliance upon anticoagulants instead of actual surgical removal of the clot occluding a medium or large artery should not occur. While anticoagulants may prevent further deposition of clot, they cannot be expected to resolve emboli which are already block-

ing an artery. At operation, the offending embolus must be removed but also thrombotic material deposited proximally and distally to the actual embolus must be sucked out so that good blood flow occurs. Figure 8 shows a distal thrombus sucked out of the



FIG. 8. Removal of distal tail of embolus from within femoral artery by long polyethylene catheter passed through arteriotomy distally toward the knee. (Courtesy A.M.A. Arch. Surg. 76:930, 1958—Dale and Mahoney.)

femoral system by a polyethylene cannula. With current availability of flexible, long, sterile polyethylene tubes of many sizes\*, it should be recognized that embolectomy is an incomplete operation until a strong pulsatile flow of blood has been obtained from the proximal direction and a steady nonpulsatile flow of blood from the distal direction. A proper blood flow through an arteriotomy in a femoral artery is a tremendously vigorous stream which will carry several feet across the foot of the operating table. A small pulsatile flow which lifts approximately an inch out of the wound suggests that there is still blocking blood clot in the proximal arterial system. The polyethylene tube (kept available in various sizes in a gas sterilized, doubly-packaged containers) is passed in the largest fitting size well up into the aorta and for 12 to 18 inches down into the popliteal artery

through a femoral (or other) arteriotomy site at the time of embolectomy. As these tubes are cautiously passed, gentle suction is made with a syringe in each direction to remove clot by sucking it up into the tube as it is advanced. In the event that properly directed efforts to clean out the thrombus associated with the embolism fail, it should be remembered that immediate bypass grafting to a patent distal vessel is at times limb-saving.

*Treatment of the Original Site of Embolization.* Anticoagulation of the patient who has undergone myocardial infarction and mitral commissurotomy with atrial appendectomy for rheumatic valvular disease should not be overlooked following treatment of peripheral embolization, since failure to do this may result in repeated embolism.

*Case.* K. P., a 58 year old white woman with known rheumatic mitral stenosis and atrial fibrillation, on April 20, 1959, had an embolus resulting in a cadaveric left lower extremity with loss of all pulses. Through a femoral incision, the common femoral artery was opened and found empty. A polyethylene cannula was passed proximally and over a period of about 10 minutes large amounts of clot removed. At conclusion there was a strong pulsating stream. On the 9th postoperative day, the patient had a mitral commissurotomy and atrial appendectomy performed without incident. Her postoperative course was uneventful. At the time of discharge, she had excellent pulses in all extremities and was convalescing satisfactorily from the thoracic operation.

*Comment.* Mitral commissurotomy and atrial appendectomy were performed at the same admission following this peripheral arterial embolism. At the time of cardiectomy no intracardiac thrombosis could be detected and it was thought likely that a small thrombus had formed and immediately passed into the periphery and hung on the left iliac bifurcation.

#### Traumatic Arterial Lesions

*Critical Sites of Injury.* Despite widespread references to arteriospasm accompanying injury, embolism and operation, there is actually very little known about the mechanism of arterial spasm and its relief. It is difficult to produce arterial spasm experimentally,<sup>11</sup> yet it is undoubtedly seen clinically.<sup>12</sup> Instances of arterial collapse due to inadequate blood flow are at time confused with arterial spasm. Incomplete removal of proximal thrombotic material may

\*Commercially available from The Klistia Co., 712 39th Ave., N., P.O.B. 715, Nashville 5, Tennessee.

result in a vessel which carries some blood and which may be said to be in "spasm" until complete removal of the offending block allows a vigorous pulse to distend the vessel. The most certain way to end spasm is to insure an adequate, vigorous, pulsatile blood flow. The local use of procaine or of papaverine hydrochloride has been advocated. At the same time that these are used, it should be certain that vascular damage does not require resection and grafting and that intraluminal clots have been completely removed.

### Summary

The important recent technical advances in peripheral vascular surgery have to some extent minimized new knowledge of indications and adjuvant management. Salvage of life and limb by direct arterial surgery depends on a proper understanding of these indications as well as the actual procedure. Certain features of arterial aneurysms, peripheral arterial occlusive disease, peripheral arterial embolism and traumatic arterial lesions have been discussed from the standpoint of the choice and timing of operation as well as of additional, useful measures. An aggressive approach to lesions threatening life or limb should be considered in each case.

### References

1. Adams, H. D., and Van Geertruyden, H. H.: Neurologic Complications of Aortic Surgery, *Ann. Surg.* 144:574, 1956.
2. Blakemore, A. H.: The Clinical Behavior of Arteriosclerotic Aneurysm of the Abdominal Aorta. A Rational Surgical Therapy, *Ann. Surg.* 126:195, 1947.
3. Burton, A.C.: On the Physical Equilibrium of Small Blood Vessels, *Am. J. Physiol.* 164:319, 1951.
4. Cannon, J. A., Barker, W. F., and Kawakami, I. G.: Femoral Popliteal Endarterectomy in the Treatment of Obliterative Atherosclerotic Disease, *Surgery* 43:76, 1958.
5. Dale, W. A., and Mahoney, E. B.: Aortic "Saddle" Embolism. Review and Report of Three Cases, One Twice Recurrent, *A.M.A. Arch. Surg.* 76:930, 1958.
6. Dale, W. A., and Mavor, G. E.: Peripheral Vascular Grafts. Experimental Comparison of Autogenous Veins, Homologous Arteries and Synthetic Tubes, *Brit. J. Surg.* 36:198, 1959.
7. Dale, W. A., DeWeese, J. A., and Scott, W. J. M.: Autogenous Venous Shunt Grafts. Rationale and Report of 31 for Atherosclerosis, *Surgery* (In press)
8. DeBakey, M. E., Cooley, D. A., Crawford, E. S., and Morris, G. C.: Aneurysms of the Thoracic Aorta, *J. Thoracic Surg.* 36:393, 1958.
9. DeBakey, M. E., Cooley, D. A., Crawford, E. S., and Morris, G. C.: Clinical Application of a New Flexible Knitted Dacron Arterial Substitute, *A.M.A. Arch. Surg.* 77:713, 1958.
10. DeBakey, M. E., Cooley, D. A., Crawford, E. S., and Morris, G. C.: Surgical Consideration of Occlusive Disease of the Abdominal Aorta and Iliac and Femoral Arteries. Analysis of 803 Cases, *Ann. Surg.* 148:306, 1958.
11. deTakats, G.: *Vascular Surgery*. W. B. Saunders, Philadelphia, 1959, (p. 401).
12. Edwards, W. S., and Lyons, C.: Traumatic Arterial Spasm and Thrombosis, *Ann. Surg.* 140:318, 1954.
13. Ellis, F. H., Kirklin, J. W., Bruwer, A. J.: Surgical Experiences in the Treatment of Aneurysms of the Thoracic Aorta, *Surg. Gynec. & Obst.* 106:179, 1958.
14. Estes, J. E.: Abdominal Aortic Aneurysm. A Study of 102 Cases, *Circulation* 2: 258, 1950.
15. Gliedman, M. L., Ayers, W. B., and Vestal, B. L.: Aneurysms of the Abdominal Aorta and its Branches. A Study of Untreated Patients, *Ann. Surg.* 146:207, 1957.
16. Gwathmey, O., Pierpont, H. C., and Blades, B.: Clinical Experiences with the Surgical Treatment of Acquired Aortic Vascular Disease, *Surg. Gynec. & Obst.* 107:205, 1958.
17. Hershey, F. B., Aikman, W. O., Ackerman, L. V., and Stamp, W. G.: Pathologic and Radiographic Studies of Amputated Extremities, *Surgery* 44:1008, 1958.
18. Kampmeier, R. H.: Aneurysm of the Abdominal Aorta. A Study of 73 Cases, *Am. J. M. Sc.* 192:97, 1936.
19. Kinmonth, J. B., Hadfield, G. J., Connolly, J. E., Lee, R. H., and Amoroso, E. C.: Traumatic Arterial Spasm. Its Relief in Man and in Monkeys, *Brit. J. Surg.* 43:164, 1956.
20. Lehman, E. P., and Figueira, C. W.: Some Aspects of "Senile" Gangrene, *Surgery* 33:28, 1953.
21. Lindbom, A.: Arteriosclerosis and Arterial Thrombosis in Lower Limb. Roentgenological Study, *Acta. radiol.*, Suppl. 80:1, 1950.
22. Linton, R. R.: Discussion, *Ann. Surg.* 148:340, 1958.
23. Mavor, G. E.: Intermittent Claudication and Sympathectomy, *Lancet* 2:794, 1955.
24. Mavor, G. E.: The Pattern of Occlusion in Atheroma of the Lower Limb Arteries, *Brit. J. Surg.* 43:352, 1956.
25. Roberts, B., and Hoffman, D.: Arterial Grafting in Severely Ischemic Legs, *J. A. M. A.* 166:1316, 1958.
26. Scott, V.: Abdominal Aneurysms. Report of 96 Cases, *Am. J. Syph.* 28:682, 1944.
27. Szilagyi, D. E.: Discussion, *Surgery* 45:70, 1959.
28. Theis, F. V.: Role of Lumbar Sympathectomy in Treatment of Vascular Disease, *J. A. M. A.* 164:1302, 1957.



## STAFF CONFERENCE

### University of Tennessee\*

#### Abdominal Pregnancy

DR. PHIL C. SCHREIER: The case today presents a problem which is not a common one and yet on a teaching service it is encountered several times during the year. This conference gives us the opportunity to present certain features which we have gained from this experience. Dr. Cameron will present the patient's history.

DR. WILLIAM B. CAMERON: This is a 38 year old colored female, gravida XIV, para XII, abortion I, who was admitted to the City of Memphis Hospitals on February 22, 1959 with a chief complaint of "hurting in her right side." Her last menstrual period was in August 1958. Her youngest living child was two years of age and her oldest child 22 years of age. She reported that her present pregnancy was normal in all respects except that at approximately three months gestation she had consulted a private physician because of severe pain in her right side. She had fainted at this time. No specific treatment was given and she did well except for recurrent pain in the right lower quadrant. As she began to notice fetal movements she reported that she experienced more pain than usual on movement of the fetus. She also experienced increased tenderness in the right lower quadrant. However, she did not receive any further medical attention and the pregnancy apparently progressed normally until three days prior to the present admission. At this time she was approximately seven months pregnant. During this three day period she had experienced severe right lower quadrant pain, nausea, vomiting, and chills. A review of her obstetric history revealed 14 pregnancies, 12 of which were normal term deliveries with the children living and well, and one pregnancy ended at three months gestation as a spontaneous abortion. Her past history and her family history were negative.

The physical examination at the time of admission revealed her blood pressure to be 180/120, pulse 88, respiration 18, temperature 98.8°. She was a well developed, fairly well nourished colored female experiencing moderate to severe lower abdominal discomfort. Her general physical examination was within normal limits except for the elevated blood pressure. Examination of her abdomen revealed a rather firm irregular mass arising from the right lower quadrant to approximately three finger breadths above the umbilicus.

This mass was tender and could partially be separated from a 15 centimeter left lower quadrant mass which seemed firm and thick. Fetal heart tones were detected in the right lower quadrant mass at 140 per minute. Pelvic examination revealed the cul-de-sac to be full and somewhat tender, the cervix was noted to be blue, central in position and closed. The uterine fundus could not be adequately outlined. The presenting part of the fetus could not be identified.

The admission laboratory findings were a hematocrit of 33 per cent, urinalysis normal, white blood count 11,900 with 86 per cent segmented leucocytes, 12 per cent lymphocytes and two per cent monocytes. The BUN was 8 milligrams per 100 cc of blood, CO<sub>2</sub> was 19 milliequivalents per liter, and chloride 102 milliequivalents per liter. The admitting resident's impression at this time was possible abdominal pregnancy.

DR. SCHREIER: Dr. Adams, I think you were called in as staff attendant to see this patient.

DR. JOHN Q. ADAMS: Let us first consider the problem of diagnosis of abdominal pregnancy and review the thinking leading up to this tentative diagnosis in this case. In the first place, we have the history of pain in her right side and fainting at about three months gestation. This is said to be typical of a patient who has a tubal abortion. We believe that almost all abdominal pregnancies are the result of a tubal pregnancy that has been extruded through the end of the tube with implantation of the placenta on the various abdominal structures close at hand. Personally, I have seen a number of abdominal pregnancies in which there was no history indicative of a tubal abortion.

DR. SCHREIER: You have brought out a very interesting point in the differential diagnosis of abdominal pregnancy. When the facts are as revealed as in this patient, they are strongly indicative that something has been different about this pregnancy. It may not always mean that it is an abdominal pregnancy as there are many other causes for this type of pain, particularly transitory pain, but it should be seriously considered that the patient has a tubal pregnancy. I do not recall whether this patient had bleeding at the time of the pain. Did she have some vaginal bleeding at that time?

DR. CAMERON: She did not.

DR. SCHREIER: This question of a tubal pregnancy aborting without associated vag-

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inal bleeding often is confusing. Textbooks tell us that when the implantation in a tube is disturbed or some say when it dies that there is vaginal bleeding. In this case we have no vaginal bleeding. Can we still believe that there was some disturbance of the tubal pregnancy in the absence of this evidence? I would say that with such a history in the absence of vaginal bleeding that some would question whether or not we are dealing with a tubal abortion. Dr. Alexander, do you want to say something?

DR. ALBERT ALEXANDER: This bleeding at the time of tubal abortion is decidual bleeding and unless the hormone level drops significantly there will be no decidual sloughing. Now, in a case of tubal abortion, the reimplantation of the developing placenta into the abdominal cavity may be of a sufficient length that there may be a drop in the chorionic gonadotrophin level of sufficient magnitude to cause a transient partial slough of the decidua. As soon as reimplantation occurs the hormone level will rise and the bleeding will cease. Such apparently was not the case here for there was no history of vaginal bleeding.

DR. R. L. JACKSON: This question of the symptoms of vaginal bleeding associated with disturbance of a tubal pregnancy is very interesting. Textbooks say that vaginal bleeding is indicative of death of the ovum. This is not true in our experience here nor is the absence of vaginal bleeding indicative of the fact that there has not been some disturbance of the tubal pregnancy. Dr. Myers, what do you think of vaginal bleeding associated with ectopic pregnancy?

DR. J. D. MYERS: Vaginal bleeding is an additional sign that would make one suspect an ectopic pregnancy when it occurs with other signs and symptoms. However, its absence by no means should exclude the diagnosis of ectopic pregnancy from active thinking.

DR. ADAMS: I believe we will all agree that pain on the right side with fainting at three months gestation fulfills the textbook criteria for a tubal abortion but it is a point that we have not seen in every instance of abdominal pregnancy. To continue with the diagnostic features of this case, the pelvic findings were highly suspicious of an extra-

uterine gestation. The fetus was palpable in the right lower quadrant and the fetal parts were closer to the examining hand than is normally found. The mass that was felt separate from the fetus was thought to be either placenta, a uterus, or both. With these abdominal findings we thought the diagnosis of abdominal pregnancy was likely and X-rays were obtained. At first, simple anterior and lateral views of the abdomen and pelvis were obtained. The findings on these X-rays were very interesting. First, it will be noted that the fetus is displaced to the right side of the abdomen and is clearly away from the midline as you would suspect an intrauterine fetus to be. Secondly, the attitude and presentation of this baby being a breech with a peculiar twist to the neck is certainly suggestive of extrauterine gestation. (Fig. 1.)



FIG. 1.

On the lateral view we see that portion of the fetal skeleton overlap the maternal vertebral bodies. (Fig. 2.) This, when found, represents a classical sign of extrauterine pregnancy because it would be almost impossible for a uterus to wrap around the





FIG. 2.

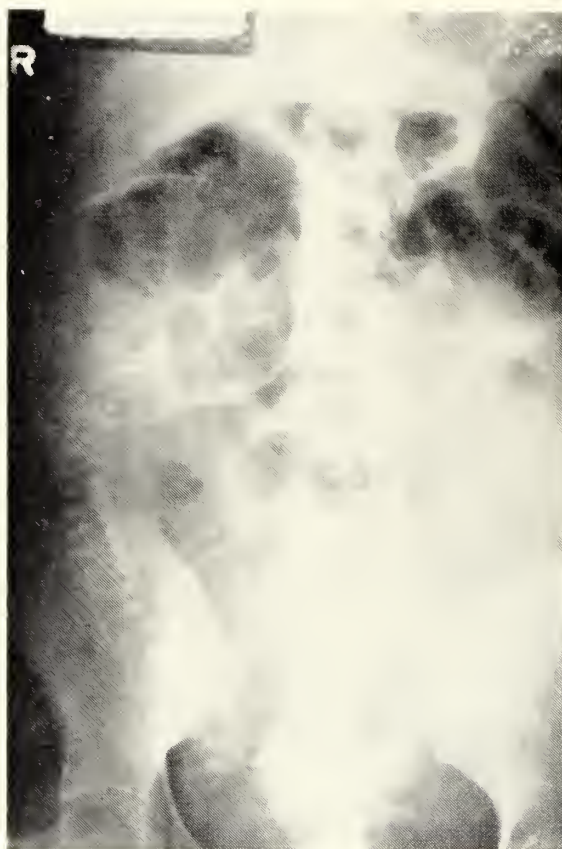


FIG. 3.

vertebral bodies so that the fetus would be in the gutter along side the vertebral column. Having seen this, the diagnosis was thought to be abdominal pregnancy for certain. However, to complete the diagnostic study, a hysterosalpingogram was done. A uterine cavity was outlined which was approximately two to three times the normal size. It was obvious the fetal skeleton was outside the uterus. (Fig. 3.)

DR. SCHREIER: We now confirm the original suspicion that this is an abdominal pregnancy. This original suspicion was based on the fact that this patient had pain beginning around three months gestation and continuing until the time of admission. So the problem now presents itself as one of management of abdominal pregnancy in the presence of a living baby. It so happens that this baby is a viable baby. There have been historical controversies about the management of this type of pregnancy and it revolves around the fact that delivery of the baby from the abdomen entails the management of the placenta. The removal of the placenta is associated with such extreme hemorrhage that the practice has

been developed of delivering the baby, leaving the placenta and closing the abdomen without drainage. Certainly those of us who have had the experience of managing these cases and attempting to deliver the placenta either voluntarily or because of incidental separation recognize the merit of leaving the placenta intact. This patient was operated upon and we would like to hear the report of what was done.

DR. ADAMS: This patient's operation was on February 24, 1959. We were very careful to follow the principle of making our incision high in the abdomen. It is important that the incision in a suspected abdominal pregnancy be made high so that one may avoid any possibility of opening upon a placenta implanted on the anterior abdominal wall. The incision was a right paramedian incision above the umbilicus. Upon opening the abdomen it was noted that the fetus was free in the peritoneal cavity with no amniotic sac. The fetus was delivered through the abdominal incision. The fetus was living and normal respiration was established immediately. The cord was cut and tied and dropped back into the ab-



domen, no effort being made to explore the implantation site. Experience has taught us that any effort to explore the implantation site in an abdominal pregnancy is accompanied in some instances by an exsanguinating hemorrhage. The abdomen was closed in layers in the usual manner. The patient's postoperative condition was good. The blood pressure and pulse remained good throughout the procedure. She received 500 cc of whole blood during the procedure and was sent to her room in good condition.

DR. CAMERON: This patient's postoperative course was completely normal. She pursued an afebrile course and was discharged on the tenth postoperative day. At that time there remained a ten to fifteen centimeter mass in the left lower quadrant of the abdomen.

DR. ALEXANDER: I just wanted to mention one thing in reference to the hysterosalpingogram that Dr. Adams mentioned as a diagnostic test. There have been instances where a hysterosalpingogram has been done on an intrauterine pregnancy in an effort to make the diagnosis of abdominal pregnancy. If this is done inadvertently no damage to the uterine pregnancy has been observed. The dye will usually diffuse between the chorion and the uterine wall but does not cause any particular difficulty.

DR. JACKSON: Has she been seen since her discharge?

DR. CAMERON: On April 11, approximately six weeks following discharge from the hospital, the patient was seen in the postpartum clinic. She had had a continued smooth course and it was noted that the uterus was retroverted and there remained a mass approximately four months size, in the left lower quadrant. She returned to the receiving ward on May 2, 1959 complaining of pain in her right side. She had remained well until two weeks prior to this time. During the last two weeks she had experienced fever, chills, dysuria, anorexia, and weight loss, but no vomiting. She complained particularly of pain in the right flank extending to the right middle portion of the back. She had mild diarrhea. Examination at this time revealed her temperature to be 98.6°, respiration 20, pulse 104,

blood pressure 90/50. The patient was described as cachectic and acutely ill with moderate dehydration. The general examination was negative except for the abdomen which revealed a four to five month size tender mass in the left lower quadrant which extended across the midline to the right lower quadrant and up the right portion of the abdomen to above the umbilicus. This mass was tender, there was muscle guarding and rebound tenderness in the right lower quadrant. The bowel sounds were normal. Pelvic examination revealed a small amount of dark blood in the vagina. The mucosa was pale. The cervix was large and firm and displaced downward almost to the introitus with dark blood in the os. The examiner was unable to outline the uterus but thought it was involved in the above mass. At this time the patient's hematocrit was 29 volumes per cent. The urine was negative, the white count was 35,400 with 75 per cent segmented leucocytes, CO<sub>2</sub> 22.7 meq/l, chloride 85 meq/l, BUN 70 mgm/100 cc, serum sodium 126 meq/l, potassium 4.9 meq/l.

DR. ALEXANDER: I would like to ask if this is the first vaginal bleeding the patient has had since the discussion earlier? If she had not had vaginal bleeding before now, the possibility is that the placenta remains alive.

DR. MYERS: This patient had a scant two day episode of menstrual type bleeding beginning on April 20, two months after the operation.

DR. SCHREIER: The patient apparently then started menstruating or having vaginal bleeding. We do not know if it was a menstrual period or due to the separation of the placenta which had remained in situ. What of the subsequent events?

DR. CAMERON: The hospital course following the second admission consisted of treatment of her fluid and electrolyte balance with the proper intravenous and oral medication. X-ray of the abdomen revealed a hazy, low abdominal mass. A serum Hogben test at this time was negative. The patient complained of rather severe right lower quadrant and right flank pain and tenderness. Her diarrhea increased in amount following admission and on May 5, she began to have daily spikes of fever up

to 103. At this time her electrolyte balance had been corrected. On May 7, the mass in the right lower quadrant was thought to be increasing in size and tenderness and she continued to experience daily spikes of fever. On May 8, her hematocrit had fallen from the admission level of 29 volumes per cent and she was given two blood transfusions. By this time her BUN was reduced from 70 to 17 mgm. This elevated BUN was thought to be due to dehydration. By May 10, the mass had increased further in size and was thought to be the size of a seven months pregnancy. The fever had responded somewhat. The patient was given penicillin and streptomycin and daily blood transfusions. On May 12, a colpocentesis was done because of the bulging cul-de-sac and approximately 100 cc of blood-tinged fluid was aspirated. The cul-de-sac bulge was diminished, however, the abdominal mass remained unchanged. It was thought that exploration through the cul-de-sac was not feasible at this time because the abdominal mass seemed higher than the lower portion of the pelvis. On May 24, the patient was still febrile and she had begun passing blood by rectum; approximately 300 cc on May 24. At this time the diagnosis of possible invasion or rupture into the large bowel was obtained. The blood loss was replaced and a laparotomy was planned.

DR. JACKSON: It is apparent that there was hesitation in immediately opening this patient. It was hoped that with time and symptomatic therapy that the mass would be localized. In other words, the judgement of the observers was against immediate exploration. I can readily see that there would be much room for debate here and that evidently the urge to do the exploration was precipitated by the rather large bowel hemorrhage which suggested a new entity, namely, erosion of the placenta into the bowel.

DR. CAMERON: On May 25, under cyclopropane anesthesia, an abdominal exploration was done with a preoperative diagnosis of intraperitoneal abscess. The omentum was completely covering a 15 to 18 centimeter cystic mass which filled the entire pelvis and rose to the level of the umbilicus. The anterior abdominal wall

was densely adherent to the omentum which covered the mass. Several loops of small bowel also adhered to this mass. The uterus, tubes and ovaries were unidentifiable. The above mass was aspirated in an area where the omentum could be detached and dark, foul blood was obtained. The cystic cavity was then opened and approximately 1500 cc of dark, very foul blood clots were removed. The placenta was found to be implanted on the left lower anterior abdominal wall and the left side of the pelvic wall. The drainage site was opened for a distance of approximately four to five centimeters and as much of the old blood was removed as possible. Attempts to dissect the placenta away from the wall of the cystic cavity produced a small amount of bright red bleeding and it was felt that the placenta was not detached sufficiently to permit its removal at this time. The edges of the cavity were sutured to the fascia and skin in an effort to marsupialize this cystic cavity. A large rubber drain was placed into the cystic cavity and brought through the opening to the exterior.

DR. ADAMS: Certainly we would be interested in knowing whether the evidence of erosion into the lumen of the bowel was recognized at the time of surgery but as you indicated, the attempt to explore this area began to produce hemorrhage and I think it was good judgement in stopping this exploration.

DR. MYERS: Postoperatively, this patient has done very well. Antibiotics, of course, were continued through her initial postoperative course. However, the patient became afebrile on the second postoperative day. This, we think, was primarily due to the drainage of this large extremely foul abscess cavity. The drainage site was dilated daily with the finger to maintain adequate drainage. The cavity was irrigated with hydrogen peroxide and throughout this course a moderate amount of light brown, extremely foul drainage was present. On the 15th postoperative day the edge of the placenta which was located on the left lower edge of the previously described cavity could be palpated and it was noted that this had begun to separate from its attachment. Each day pieces of necrotic placenta, membranes, and debris were evac-

uated either by irrigation or by lifting them out with a spongestick forcep. On the 19th hospital day, all of the placenta was finally extruded. Up to this point the patient had continued a progressive decline in weight with only a slight to moderate appetite. However, after the completion of the evacuation of the placenta over the next week the patient's appetite had progressively improved. She has been much more ambulatory and her weight has gradually returned to normal.

DR. ADAMS: It has been our policy to operate upon a patient with an abdominal pregnancy as soon as the diagnosis is made disregarding whether the fetus is living or dead instead of allowing it to progress in an effort to get a more viable fetus. It is interesting to know that in the case under discussion today the fetus weighed three pounds, six ounces and has been reported as continuing to do well.

DR. JACKSON: One important feature is the formation of the abscess cavity. It is relatively unusual to be able to operate primarily and not have hemorrhage such that

you need an abdominal pack. The majority of cases that I have seen have had to have an abdominal pack and with removal of this pack a drainage site is left. However, I think it was highly desirable to close the abdomen primarily after an abdominal pregnancy if hemorrhage is not a feature.

DR. SCHREIER: In summary, this patient was deliberately managed so as to avoid the dangerous hemorrhage from separation of the placenta and particularly as was emphasized that in the exploration the placental site was avoided. Experience has shown that the placenta is often inadvertently separated, possibly by spreading the abdominal incision, so that detachment of the placenta occurs and hemorrhage becomes an increasingly severe problem. We were particularly interested in this patient because of the planned effort to avoid this accident and it was thought that it had been done in accordance with the best technique. Yet the complication of abscess formation ensued which presented another phase of the management of abdominal pregnancy.



## CLINICOPATHOLOGIC CONFERENCE

### Surgical Complication of Resection of Abdominal Aortic Aneurysm\*

Fenwick Chappell, M.D., and Merlin L. Trumbull, M.D.

DR. FENWICK CHAPPELL: I presume that all of you will have already read the protocol, but in order to have some basis for our discussion, we will go over the essential features of the story.

This was the case of a 73 year old white male who was admitted to the hospital on November 20, 1958. Forty-eight hours prior to his admission, he had awakened at night with a sudden onset of pain in the left lumbar region. The pain radiated anteriorly into the abdomen and somewhat later into the right leg. The pain was described as severe and continuous and required the administration of a narcotic for relief. The past history revealed that the patient had had cardiac insufficiency, but for the past seven years had remained partially compensated while taking digitalis daily. He had also been reported as having epilepsy for the last five years. This developed following an automobile accident. He had been taking Dilantin to control his epileptic seizures.

At the time of admission, his temperature was 98.6, the pulse rate was 84, the respiratory rate was 14, and the blood pressure was 115/70. He did not appear to be in acute distress. The heart revealed frequent extra-systoles and a bigeminal pulse. The abdomen revealed marked pain and tenderness in the left lower quadrant. There was a 15 cm. pulsating mass just to the left of the midline extending from just below the costal margin down almost to the brim of the pelvis. Pulses were palpable in both lower extremities. These findings suggested that he had an abdominal aortic aneurysm, which was perforating or leaking. An x-ray of the abdomen was soon made, and I believe at this time we will have Dr. Booth interpret that for us.

DR. JAMES BOOTH: We see in the abdomen a mass whose location corresponds to the clinically palpated one. Also we can

make out the left renal shadow as being separate from the mass. The left renal shadow appears to be normal in size and position and does not appear to be displaced by the mass. We see some calcifications along one side the spine, and they appear to be in a fairly linear distribution suggesting that they may be in the wall of an aneurysm.

DR. CHAPPELL: The laboratory work on the day of admission revealed a Hgb. of 12.8 gm., WBC of 13,900, with 87% segmented neutrophils. There was a hematocrit of 38.5%. The urine findings were: specific gravity of 1.029, 1 plus proteinuria, 0-4 WBC, 5-10 RBC, and 0-2 hyaline and granular casts per high powered field. The BUN was 16 mgs.%. I think these indicate certainly that the kidneys were functioning adequately at the time of his admission, and yet the presence of small amounts of protein, blood cells and casts in the urine probably is indicative of borderline function. Although he did have power to concentrate urine to 1.029 and his BUN was not significantly elevated, still at his age it is reasonable to expect that this man had a somewhat marginal renal function.

Although the man was not in shock at the time of admission and apparently had not bled significantly, still the interpretation of the clinical status was that rupture of the aneurysm was imminent.

At the time of laparotomy the day following admission, he was found to have a large saccular aneurysm arising from the aorta 5 cm. below the renal arteries. There was about 200 cc. of blood in the peritoneal cavity, and there was an extensive retroperitoneal hematoma which partially involved the root of the mesentery. At the completion of insertion of a dacron prosthesis following resection of the aneurysm, it was noted that the right foot was pale and that there was no pulse in the right posterior tibial or dorsalis pedis arteries. The right popliteal artery was then exposed by a separate incision, and no backflow of blood was demonstrated. Presumably the iliac arteries were patent down to this point and there was blood coming through the aorta to this point, but there was an obstruction below the level of the popliteal artery. The surgeon then attempted to do a backflush

\*From the Baptist Memorial Hospital, Memphis, Tenn.

procedure for which he cut down on the posterior tibial artery at the ankle and attempted to inject saline in a retrograde manner to dislodge any embolus that might be present in the calf of the leg. This attempt was unsuccessful. He then closed the incisions in the leg and closed the laparotomy incision, although it was known that the viability of the right foot was definitely in question. Apparently the man tolerated the surgery remarkably well because we are told that at the completion of the procedure the blood pressure was 110/60, the pulse rate was 88 and the respiratory rate was 16. The temperature immediately after surgery was 102°. He was given 6 units of blood during the operation. On the first postoperative day, his general condition was said to be good, although the condition of the right foot was definitely in question, being cold and pale.

Next follow a series of laboratory findings that mirror his oliguria, which promptly developed. On no day following his surgery was the volume of urinary output more than 190 cc. and on several days the volume was less than 100 cc. A single specific gravity determination during the postoperative period was 1.011. Numerous electrolytic and other chemical analyses were consistent with developing acidosis and uremia with the BUN reaching 186 mg.% on his sixth postoperative day. He became icteric with serum bilirubin reaching 6.3 mg.% (direct 3.4, indirect 2.9) on the third postoperative and 8.7 mg.% on the sixth postoperative day. He died quietly on the seventh postoperative day.

The problem involved in this case is one that is encountered in many surgical procedures that are of such major proportions. Certainly we are dealing with a poor operative risk to begin with in an elderly man 73 years old with a previously known diseased heart. Although he was not in shock at the time of the operation, he had lost a considerable amount of blood judging by the size of the retroperitoneal hematoma. We are told that the aneurysm arose about 5 cm. below the renal arteries, so I presume that it was not necessary to occlude the renal arteries at any time during the procedure. We can presume that circulation through the kidneys was maintained dur-

ing the entire operative procedure. Our problem, then, is one of acute renal failure which developed in the postoperative period. Now unless our friends from the Pathology Department have something very unusual up their sleeves, I think this resolves itself principally in a discussion of the causative factors of acute renal failure and with the clinical management of such a case.

Acute renal failure became much better understood about the time of World War II, and the syndrome was referred to at that time as "lower nephron nephrosis," but subsequently it became known that the renal lesion involved more than just the distal portion of the tubules. Now there are a number of terms that are applied to the syndrome, the best one probably is "acute renal failure." "Acute tubular renal failure," "acute tubular necrosis," "shock kidney," "traumatic uremia" and "transfusion kidney" are various terms used reflecting topographic or etiologic factors often involved in this syndrome. Possibly one of the 6 units of blood was mismatched and produced this difficulty in this man. More likely, the extensive retroperitoneal hematoma and the somewhat shocking procedure of the surgery itself probably produced the renal damage in his case.

We are told that the increasing concentration in the blood stream of nonprotein nitrogenous materials is not the thing to be most greatly dreaded in these cases. More important is the danger of overloading the patient with fluid and death from pulmonary edema or from the increasingly higher levels of serum potassium causing cardiac standstill. The treatment consists of restricting fluids and of efforts to remove the accumulation of toxic materials produced by the renal failure.

In view of his icterus, this man might have had some cirrhosis or some other liver disease, or the jaundice could have been a complication of the multiple transfusions or from the absorption of blood from the massive retroperitoneal hematoma.

In conclusion, I believe that we have here the progressive picture of the result of acute renal failure whether it be caused by hemolysis from this extravasated blood or by the transfusions he received, or whether it



be from the general shocking condition of the disease and procedure that was required to correct it. I don't know that we can say which process did it. The absorption of the hemolyzed blood in the retroperitoneal space was adding constantly more potassium to the extra-cellular fluid, which the kidneys were unable to clear. Terminally, death was probably caused by hyperkalemia since he did have a drop in blood pressure. He evidently went into cardiac failure with pulmonary edema, which was the thing that necessitated the tracheotomy to permit aspiration of fluids from the tracheobronchial tree.

DR. PHIL ORPET: Thank you, Dr. Chappell, for a very excellent discussion. Dr. Olim or Dr. Moore, I wonder if either of you would care to enlarge upon the surgery?

DR. CHARLES OLIM: Dr. Fred Moore did the surgery in this case and did an excellent job in taking care of this leaking aneurysm. The course of the patient throughout surgery was quite good. There was the usual blood loss that goes with an operation of this sort including flushing out the aorta and the iliac vessels after a graft is inserted and the leakage that occurs through the weave of the dacron graft. Because the aneurysm ended above the bifurcation, it was not necessary to insert a Y-shaped bifurcation, which was the exception certainly as far as my experience has been concerned. Since the aneurysm began about 5 cm. below the renal vessels, there was no need to clamp the renal vessels. I do not think there was any time when we were concerned about getting a clamp on the renal arteries as they were identified and we were well below them. We realized that the aorta just proximal to the aneurysm showed marked atherosclerotic changes even though there was no significant change in the diameter of its lumen. This is the usual observation in these cases of arteriosclerotic aneurysms of the abdominal aorta.

Usually there are many little tags of cholesterol, fibrin, and other components of atheromatous plaques hanging from the aortas, and we are always much concerned about the fate of these tags, fearing that they may become detached. We are al-

ways concerned about fracturing calcified plaques and having them break loose and serve as emboli. To get around this, after we clamp the aorta and remove the aneurysm, we simply clean out all these tags that we can possibly see and then flush out the aorta to be sure we haven't caught one in the clamp that would otherwise pull loose. After the graft is inserted and before blood is allowed to pass down into the iliac vessels, an opening is left in the lower end of the anastomosis and a second flush is carried out. A retrograde flush of the iliac arteries is made to make sure no emboli have lodged in them. Finally, we flush out the proximal portion of the aorta and the graft before the final suture is tied. We feel that by doing so we are taking every precaution to reduce the possibility of an embolus passing down into the legs. But in spite of these precautions, an embolus escaped into one of the iliac arteries going into the popliteal and apparently into one of the tibial branches. There was no backflow from the popliteal when it was later exposed.

In addition to retrograde flushing, perhaps the most important step for clearing out the distal small vessels is simply a milking procedure. You can forcibly compress and release the calf of the leg two or three times in an effort to pump out most of the small clots that are lodged there. But if that fails, as it did in this case, then one has to resort to retrograde flush using arteries exposed in the ankle. A bell-shaped cannula connected with a 50 or 100 cc. syringe is inserted into one or more distal arteries and very forcibly clots are washed out through the open popliteal, except in this case they didn't flush. There isn't very much that you can do after that; you simply have to hope that enough blood will get through via the superficial femoral or profunda femoris to around the knee joint and into one of the tibials or peroneals, which will nourish the leg. We felt that this chance had to be taken in this particular case.

DR. ORPET: Are there any other comments?

DR. GEORGE LIVERMORE, JR.: Like Dr. Chappell, I don't believe we have as much a diagnostic problem here as a thera-



peutic one, but we should try to determine why these postoperative complications occur. I understand that in mismatched blood transfusion reactions, the difficulty these patients get into is either renal shutdown or a defect in their clotting mechanism whereby they bleed and ooze from all conceivable locations. The point has been made that hemoglobinuria by itself is not damaging, and this is the point that I would like to bring up. Some authorities say that you must have some renal damage such as ischemia associated with this for hemoglobinuria itself to be harmful. Whether this man had hemoglobinemia or not we do not know, but I believe he certainly had some excess hemolysis. He had an elevated serum bilirubin, and no bile was in his urine, but whether he had intravascular or extravascular hemolysis is certainly problematical. Apparently, according to Dr. Olim, the man had a satisfactory course, and we don't have any reason to suspect that he had a period of prolonged hypotension or hypoxia during surgery. So one begins to wonder why the man ran into the difficulties he had. I am almost forced to the conclusion that he had a hemolytic transfusion reaction. On the other hand, absorption of blood from his retroperitoneal hematoma may have given him the difficulty. Still, if he just had hemoglobin breakdown products in the urinary tract, is that enough to produce this reaction without some other difficulty that has interfered with his blood flow?

DR. ORPET: Are there any other comments or questions?

DR. ROBERT McBURNEY: I would like to mention that even though surgery is carried out early in ruptured aneurysms, there is still a high mortality, and the man who handled this case certainly has no cause to be ashamed because the patient did not live. In the best hands there is a 40 to 50% mortality when there is rupture, and in most of the cases that do die after successful resection and grafting, the cause of death is renal failure. Since this patient was apparently never in shock, I feel that we must look elsewhere for the cause of his renal failure. Perhaps there is some anomaly or arteriosclerotic obstruction of the renal vessels. Another factor to be consid-

ered is the length of time that the aorta was clamped. We know that we can clamp below the renal arteries for quite a few hours without too much renal damage occurring, whereas clamping above the renal vessels demands a much shorter period of time. There is some deleterious effect of clamping the aorta even below the renal arteries, and perhaps Dr. Olim can tell us how long the clamp was on. Whether that had anything to do with his subsequent course I don't know, but there is experimental evidence that there is some damage to the kidneys even though the clamp is below the renal arteries.

DR. ORPET: Dr. Olim, could you answer that question?

DR. OLIM: I would estimate the time to have been about an hour, which I think is about the usual time that one needs to insert a straight graft.

DR. WILLIAM T. TYSON: There was an article from the Massachusetts General Hospital a while back which stated that following a procedure such as this there was frequent embolization of atheromatous material to the kidneys. I think the authors said it occurs in some 10 or 15% of the cases, but I don't recall the figures for sure.

DR. B. F. SCOTT: Is there a record of any previous blood pressure recordings on this man? His present readings could well be shock levels for this individual if he had been previously hypertensive.

DR. ORPET: Is there anyone from the Monroe Service able to answer that question?

DR. FRED MOORE: This man was seen for the first time when admitted; therefore, we have no past history. He did not appear to be in shock.

DR. ORPET: If there are no further comments, we will turn it over to Dr. Trumbull, and he will tell us what happened.

DR. MERLIN TRUMBULL: This moderately jaundiced man had a fresh tracheotomy wound, and there was early gangrene of the right foot extending up to the ankle. Since the heart weighed 490 grams, we might surmise that probably the man had had some hypertension prior to his final illness. Also the EKG showed some left axis deviation. The lungs were a little heavy, each weighing 490 grams, and their cut sur-

faces had a mildly moist appearance. Each adrenal had at least one small infarct, which appeared to be of several days' duration.

The kidneys were the seat of the most interesting changes. The renal arteries showed a modest amount of atheromatous deposits in their walls, but their lumens were not significantly compromised. Each kidney weighed 200 grams, and each contained multiple fairly young infarcts measuring up to 2 cm. across and in their aggregate comprised about 50 to 60% of the renal substance. The pathogenesis of these infarcts was found in the microscopic sections of the kidneys. The lumens of mainly the interlobular arteries often contained the contents of atheromatous plaques. Figure 1 illustrates the long slit-like spaces of

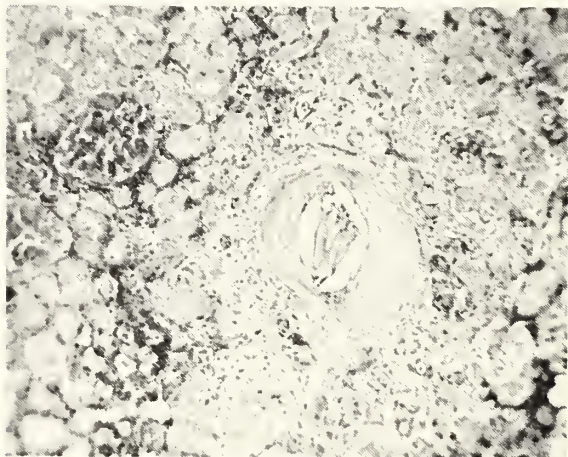


FIG. 1. Atheromatous embolus with an interlobular artery of kidney. Note the "cholesterol" clefts.

dissolved-out cholesterol crystals embedded in amorphous pink-staining material and a few macrophages. In some were clots of blood around fragments of atheromatous debris (Fig. 2). It is my interpretation

that these infarcts have been produced by the embolization of atheromatous material. Actually, of many slides made of both kidneys, those containing the infarcts showed these emboli frequently. In one slide, I counted four blood vessels with the cholesterol deposits, and in another slide were eight vessels similarly occluded.

Other small infarcts seen microscopically only were found in one of the testes and already mentioned were the infarcts in each adrenal. In none of these was the occluded vessel seen. Elsewhere no recent

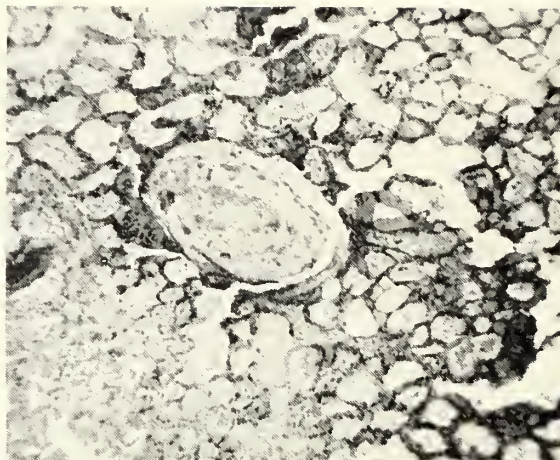


FIG. 2. Amorphous material of atheromatous plaque admixed with some blood filling lumen of interlobular renal artery.

infarcts were seen. Please note that the infarcts are found only in organs whose arterial blood supply comes from the aorta just proximal to the aneurysm. The graft was patent, and there was no evidence of leakage around its anastomoses, but proximal to the graft there was a marked amount of atheromatous material on the inner lining of the aorta. The retroperitoneal region contained an estimated 200 cc. of blood clots. The brain was excluded from examination, so we were unable to check upon the possibility of old scarring, which probably was the result of his automobile accident and subsequent epileptic convulsions.

We think this man died with renal failure due to massive destruction of his kidneys by these multiple infarcts produced by the embolization of atheromatous material. Dr. Tyson in the discussion referred to an article<sup>1</sup> by Thurlbeck and Castleman, who reported in 1957 the causes of death of their patients who had died following resection of abdominal aneurysms. In 22 deaths, 17 had infarcts. They classified their cases as being severe if 25 to 70% of the renal parenchyma were infarcted. Their severe cases, which behaved clinically entirely like ours, had courses characterized by the surgery with no evidence of shock, then immediate onset of oliguria or anuria, and death in uremia from 4 to 22 days later. They also investigated cases not operated upon from their autopsy service for embolization of atheromatous material. They found 31% of these showing some evidence of renal infarcts, but these were never as



severe as in those who were operated upon. Thurlbeck and Castleman felt that the pathogenesis of this embolization is by the detachment of atheromatous material from the intimal surface of the aorta, and it is accentuated when the clamp is put on the aorta. The act of clamping no doubt causes detachment of atheromatous material. Em-

bolization into adjacent branches is probably facilitated by the turbulence created when the aortic lumen is completely occluded.

#### Reference

1. Thurlbeck, W. M., and Castleman, B.: Atheromatous Emboli to the Kidneys after Aortic Surgery, *New Eng J. Med.* 257:442, 1957.

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**The "Silent Coronary": The Frequency and Characteristics of Unrecognized Myocardial Infarction in the Framingham Study. Joseph Stokes, III, M.D., and Thomas R. Dawber, M.D., *Annals of Internal Medicine*, Volume 50, June, 1959.**

The authors present previous statistics showing that many earlier investigators were unable to find recognized pain as a primary symptom of myocardial infarction in a varying percentage of cases. They noted that dyspnea was frequently a presenting symptom. Frequently, no symptoms referable to the heart had occurred. They point out that previous studies have dealt exclusively with hospitalized patients. However, since patients with mild symptoms and atypical manifestations of myocardial infarction may well escape diagnosis and hospitalization, the frequency of painless infarction cannot be accurately determined without studying coronary disease as it occurs in the general population. This study dealt with the findings of approximately five thousand subjects between the ages of 30 and 59. This group of patients was examined and followed routinely from 1950 through 1957. Individuals with a history of, or with electrocardiographic evidence of myocardial infarction were excluded. However, persons with angina pectoris were included.

During this seven year period twenty patients died suddenly under circumstances suggesting coronary disease. Nine persons died during the acute phase of a recognized myocardial infarction. Forty-nine of the group who were periodically checked reported having sustained a coronary attack. Some of these had had serial electrocardiographic changes during the acute phase of their infarction, but did not have residual changes at the time of the next routine electrocardiogram. Fifteen patients who did not give a history of a myocardial infarction at the time of routine re-evaluation were found to have un-

equivocal electrocardiographic evidence of an interim myocardial infarction.

Of the 58 clinically recognized myocardial infarctions, 53 had typical oppressive precordial discomfort and the remaining 5 had atypical, yet severe, chest pain. In the 15 with unrecognized infarctions, no typical discomfort was present. Three had not felt well and had consulted a physician. Four patients, in retrospect, could recall mild discomfort which did not require medical attention. The remaining eight consistently denied any chest discomfort.

Analysis of the data failed to show any significant differences between recognized and unrecognized groups in regard to age, sex, occupation, weight, or blood pressure. Both groups had consulted physicians for other reasons with approximate equal frequency. No date was obtained in regard to pain threshold.

It is of interest that there was a difference in the prevalence of angina pectoris following myocardial infarction in the two groups. Those who had recognized infarctions were more likely to have subsequent complaints compatible with those of coronary insufficiency.

It is concluded that at least 20% of the 73 myocardial infarctions occurring in the group were clinically unrecognized. They also theorize that the true percentage was probably higher. This would particularly apply if they had had more data on the patients who died suddenly. In their overall studies, they feel that it was quite likely that approximately one-third of all the coronaries occurring in their group were in the so-called "silent" type.

The authors note that the unrecognized infarcts are milder than usual and that they do not cause such complications as shock, congestive failure, and unusual arrhythmias. (Abstracted for the Middle Tennessee Heart Association by Milton Grossman, M.D., Nashville.)



## President's Page



HARMON L. MONROE

"If voluntary prepaid health insurance is going to work, doctors must recognize that it is a permanent part of our system of health care, and they must accept their responsibility to help make it succeed."

This remark, made partially as a challenge to the medical profession of Tennessee and partly as a statement of fact, came recently from an official of the Tennessee Farm Bureau Federation at a meeting of the TSMA Prepaid Health Insurance Committee.

This official made two suggestions, predicated on the acceptance of his proposition. These were: (1) a carefully studied plan be developed by TSMA to determine what the average physician could and should do to make insurance plans succeed; (2) an educational plan be developed to disseminate such information among members of the medical association to the end that each member would make his greatest possible contribution to insure that voluntary prepaid insurance is successful.

These are cogent points. They are worthy of serious consideration on the part of all of us who believe in the private practice of medicine. Let us briefly examine some facts. First, the Tennessee Plan, originated eleven years ago as an alternative to compulsory national health insurance, put the Tennessee State Medical Association squarely on record as endorsing the principle of pre-payment of one's medical and surgical fees. Secondly, today only about 55 per cent of Tennessee's practicing physicians have contracted to participate in the Tennessee Plan. Third, about 70 per cent of all Tennesseans covered by prepaid health insurance are covered by the Tennessee Plan.

These percentages form an interesting and almost startling comparison. It would appear that the lay public more fully subscribes to the principle of medical and surgical prepayment than do physicians in Tennessee.

Participation in the Tennessee Plan is truly voluntary, on the part of both physicians and patient. No coercion can be utilized by organized medicine, on any level, to compel physician participation in any program, regardless of how strongly organized medicine may endorse and recommend.

The cart is obviously in the wrong position with respect to the horse. The leadership is coming from the wrong direction. Other groups, both friendly and hostile to medicine, are recognizing this.

I sincerely believe that this situation poses one of the most serious problems confronting our profession today. In the light of brief but studied analysis, two alternatives emerge. One is that we practice what we preach . . . that we "get on the bandwagon."

The other is the slow but inevitable death of the prepaid health insurance system, and with it, the birth of a new and all-encompassing system of governmental medicine. What form this might take, we cannot foresee . . . but we can be assured that it can and will take place.

At the recent hearings on HR 4700, the Forand Bill, before the House Ways and Means Committee, medicine and its allies pointed to the wide coverage afforded Americans of all ages by the system of prepaid health insurance. The American public has demonstrated its willingness to accept this program. Doctors of Tennessee can do no less.

*H. L. Monroe, M.D.*

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AUGUST, 1959

## EDITORIAL

### GLAUCOMA

Early detection of glaucoma is a problem of increasing importance. In the United States there are nearly 50,000 persons blind because of glaucoma and probably several times that number who are blind in one eye as a result of this disease. One-seventh of all blindness is due to glaucoma, and it has been emphasized by Foote<sup>1</sup> that early diagnosis combined with proper treatment will often prevent further loss of vision. Sight which has been lost cannot be restored since increased intraocular pressure apparently causes irreparable damage to the sensitive cells of the retina and optic nerve.

A careful history is important in making a diagnosis of glaucoma. In one type, known as acute congestive glaucoma or closed angle glaucoma, there is an acute episode of pain about the eye, and sometimes severe nausea and vomiting. Edema of the cornea may cause an effect of rainbow colors or halos about lights, and in ad-

dition there is often poor visual acuity, dilated pupil, and hyperemia of ocular blood vessels. The observation of a slightly red eye with a steamy cornea and a large pupil which reacts sluggishly to light may aid in making the diagnosis of acute congestive glaucoma.

Chronic simple glaucoma known as open-angle glaucoma is much more common and far more difficult to suspect in its early stages. The pressure builds up so slowly that there is usually no eye pain and no ocular sign suggesting eye disease until later. Mild headaches and unhappiness about glasses are much more common symptoms in this type of glaucoma. If there are frequent changes of glasses in middle age without visible lens or metabolic changes, one should not be satisfied until the possibility of glaucoma has been explored.

Ophthalmoscopic examination may reveal cupping of the optic nerve, and certainly routine examination of the fundus is essential if the changes indicating increased intraocular pressure are to be detected. Tests of visual fields are most helpful in diagnosing glaucoma and other eye diseases. Harrington and Flocks<sup>2</sup> have devised a fairly rapid test which is not only novel but also appears to be most effective in detecting various eye disorders.

Without question, the most important single test for detecting glaucoma is the standardized tonometer to measure intraocular pressure. This is a test which should be done periodically on all persons over forty. In doing tonometry an anesthetic is first placed in the eye and the tonometer applied to the cornea in a few seconds. Interestingly, most surveys show an incidence of undetected glaucoma ranging from 2 to 6% of the cases studied. There is some family predilection as it has been noted that 14% of persons with glaucoma have relatives with the same condition.

There is an erroneous but widespread belief that in most instances one may find increased intraocular pressure by testing with the two index fingers placed on each eye. "Such a test is perhaps better than nothing, but is just about as accurate as kicking the tires on your car to learn whether or not the pressure is correct." Available studies

of this method reveal that even highly trained personnel cannot estimate accurately the intraocular tension in a significant proportion of the cases.

In those areas of our State where ophthalmologists are not readily available it is extremely important for the general practitioner, internist and industrial physician to have tonometers available to test likely candidates for increased intraocular pressure. With our aging population it will help the fight against blindness if these physicians keep in mind the frequency of such sight-destroying diseases as glaucoma. Since our only hope of reducing the effect of glaucoma as a common cause of blindness is early detection, it behooves all who see patients, who have passed the age of forty, to consider seriously the possibility of glaucoma and be ever mindful of the important symptoms. All who have either symptoms or signs of glaucoma should be put into the hands of adequately trained physicians so that proper treatment can be immediately instituted.

A. B. S.

#### References

1. Foote, Franklin M.: Early Detection of Glaucoma, New York State Journal of Medicine. 59:811, 1959.
2. Harrington, D. O., and Flocks, Milton: Multiple Pattern Method of Visual Field Examination, J.A.M.A. 157:645, 1955.



### Special Article

*The reader will find here the statement made by Dr. Joseph W. Johnson, Jr., Speaker of the House of Delegates, representing the Tennessee State Medical Association, in opposition to the Forand Bill (H.R. 4700) before the Ways and Means Committee of the House of Representatives. The testimony was presented on July 16th. It is hoped that it might be read by each physician in Tennessee.—Editor.*

#### STATEMENT OF THE TENNESSEE STATE MEDICAL ASSOCIATION

Re: Amendments to the Social Security Act  
BEFORE COMMITTEE ON WAYS  
AND MEANS

House of Representatives

By: Joseph W. Johnson, Jr., M.D.

Mr. Chairman and Members of the Committee:

I am Dr. Joe Johnson of Chattanooga. I am Speaker of the House of Delegates of the Tennessee State Medical Association, a member of its Board of Trustees and of its Prepaid Health Insurance Committee and am here as a representative of that Association to present testimony in opposition to H.R. 4700.

Those of us who practice Medicine in Tennessee have long been aware of the increasing number of problems which arise from the medical needs of the aged. We realize these problems must be met effectively for we deal with them daily, directly and with the responsibility given to us by our State Legislators. We recognize of course this responsibility of legislative bodies regarding medical matters which are in the public interest. Though we have earned our degrees of doctor of medicine and our opportunities for post-graduate training, it is, after all, our State Legislature which has given us the extraordinary privilege and responsibility of practicing medicine. We appreciate, therefore, the concern of this Committee and the Congress for the medical needs of the aged. Nonetheless we oppose H.R. 4700 as unwieldy, uneconomical, untimely and unlikely to accomplish what it proposes to do. We would emphasize again that you and our State Legislatures have a most serious responsibility, for improper legislation can result in shoddy medical care for all.

The Tennessee State Medical Association considers H.R. 4700 unwieldy, a broad sword rather than a scalpel, if only because it lacks appropriate definition, apparently providing medical, hospital and nursing home care for the aged regardless of need and for a group defined only in terms of age and additional tax contributions to OASDI. We recognize as a very realistic factor the unusual difficulties of elective bodies under certain circumstances to define need or disability and adhere to such definition, a factor in the equation, however, that is not to be ignored. Certainly it has presented problems of admission to the hospitals of the Veterans Administration, for appraisal of need must be flexible, knowledgeable and contemporary. If it is to be used as an effective criterion for action it must also have meaning.



This can be illustrated by our experience in Tennessee. There, the medical profession, concerned with provision of medical care for the medically indigent including the aged, sponsored in the Tennessee General Assembly of 1953 a bill, now law, for the hospitalization of the indigent. At the request of those of us who practice medicine in Tennessee the provisions of this bill expressly prohibit physicians from charging the medically indigent patient a fee for professional services during such periods of hospitalization. As of June, 1958, 7138 persons have been so treated while hospitalized under these provisions. Funds appropriated by the State and matched on a voluntary basis by 90 of Tennessee's 95 counties have been used to pay the hospital bills. When, however, the State Legislature accepted Federal matching funds from the Welfare Hospital Assistance Program, an unwieldy distortion developed which we believe falls short of meeting the medical needs of the aged, one which further distorts available solutions to the needs of all who may require hospitalization. Under the bill passed by our State Legislature in 1953, persons are determined to be medically indigent by a screening committee of citizens in each of the participating counties and the administration of the program is the responsibility of the Tennessee Department of Public Health. However, because of certain phraseology in the Federal law requiring that the Program be administered by "a single state agency," the WHPA is administered by the Tennessee Department of Public Welfare and all recipients of the Welfare Department's Old-Age Assistance Program became immediately eligible for 30 days "free" hospitalization annually and were so informed by the Tennessee Department of Public Welfare. This Federal provision has demonstrably lowered the level of medical attention in the hospitals in the smaller communities in Tennessee by the conversion of certain general hospitals in to what amounts to nursing homes. Under that program the patient, not the physician, initiates the request for admission to the hospital. Here apparently the definition of group is based on welfare department qualifications plus old age, plus desire for hospitalization. This last factor is by no man-

ner of means always a medical need. Yet such hospitalization promised gratis has placed an additional strain on our general hospitals, their medical, nursing and other personnel.

We believe H.R. 4700 to be uneconomical because it seems to us unlikely that it will accomplish what it proposes to do in terms of human values. Variation of costs estimates for administration of H.R. 4700 during even the first year as contained in the report to your Committee dated April 13, 1959, by the Secretary of Health, Education and Welfare is also most impressive as are the cost estimates themselves and the presently projected increases in the social security portion of the total tax withholdings. The physicians of Tennessee are by no manner of means economists or actuaries but we do recognize inflation and its threatened growth as a serious medical problem to our older patients. With the possible exception of our colleagues in obstetrics and pediatrics, never a day goes by that we do not deal directly, intimately and we hope with concern and good judgment, with the problems which lie before this committee and which H.R. 4700 proposes to deal with by additional taxation within the framework of social security.

We consider this legislation untimely, having reason to fear that a solution to the medical problems of the aged by what amounts to Federal monopoly of those problems will not only be unwieldy and uneconomical but at this time will destroy the increasingly successful efforts in recent years of voluntary pre-paid insurance, physicians, individuals, management, labor and our communities to deal with those problems. Proper distribution and effective utilization of medical assets requires flexibility and an active participation of physicians in the social, economic and political world in which they practice and in which their patients, elderly or just arriving, must work out together those problems. Though physicians in Tennessee and America have historically dealt with the medical problems of their times in a variety of ways whether participating in military service, community emergencies and disasters or national epidemics, there has never been a time when as many physicians have learned as

much about our present complex socio-economic and political world or been so constructively involved in seeking solutions. This is true whether reflected by the Rhode Island plan or the California Relative Value Scale, by major medical coverage, comprehensive medical coverage, Medicare or the benefits and limitations of indemnity and/or service plans. It has been our experience in Tennessee that education of physician, insurer and policyholder does not only take time and devotion but involves a sense of responsibility and participation which makes for flexibility and viability, a type of growth which to us in Tennessee promises more and better quality medical care for the aged than seems likely to be gained by passively leaning upon a Federal tax structure.

Shortly after World War II, doctors of medicine in Tennessee began studies and instituted action which eleven years ago brought into being the Tennessee Plan, sponsored by the Tennessee State Medical Association. This plan presently provides protection to more than 1,300,000 individuals and is underwritten by Blue Shield and 40 commercial carriers. As revised a year ago it offers Surgical, Obstetrical, Radiological and Medical Protection. A majority of physicians have contracted to accept its benefits as full payment of fees for individuals whose income does not exceed \$2,400 per year and for insured individuals with dependents whose total family income does not exceed \$4200 per year. Throughout these years a vast amount of education has taken place through consultation among doctors, the Farm Bureau, labor, insurers, management, policyholders and more recently the Health Insurance Council. We in Tennessee would emphasize again that this experience in education remains a principle asset in meeting the medical problems of old age. To destroy it by legislative ukase we believe is particularly hazardous at this time, though we recognize there are those dedicated to the principle that such joint efforts cannot of their very nature succeed and therefore earnestly seek a solution by federal edict.

The Tennessee State Medical Association Committee on Aging in June, 1958, initiated activity which established the Tennessee

Council on Aging, composed of 41 member agencies each interested in and concerned with the problems of our senior citizens. In addition to medicine, its membership includes, labor, hospitals, mental health, nursing homes, dentistry, management, insurers, municipal and county government, nursing and others.

As early as 1957 there were 278 thousand Tennesseans in the age 65 and above group, 55,000 of them covered by health insurance in one Blue Shield Company alone and an equal number, perhaps more, covered by other plans. Action of the T.S.M.A. House of Delegates at its annual meeting this year supported a Senior Citizens Policy of the Tennessee Plan, encouraged the insurance companies to utilize their actuarial and selling skills to obtain broad and practical coverage and urged the hospital associations to study methods of meeting by voluntary prepaid insurance the costs and cost accounting of hospital care for the aged. Still more recently the Prepaid Insurance Committee resolved to recommend to our House of Delegates "that members of the Tennessee State Medical Association accept the fee schedule outlined in the revised Tennessee Plan (July 1, 1958) as the maximum fee schedule for all patients over age 65 of modest resources and low incomes as defined by that plan."

Unwieldy, uneconomical and untimely, we also oppose H.R. 4700 because we believe it unlikely that this legislation will meet significantly or effectively the medical needs of the aged. Moreover, it may well destroy the motivation and means of meeting those needs which increasingly stem from a concern for the aged by active rather than a passive participation in defining and meeting those needs.

## DEATHS

**Dr. Marvin McTyeire Cullom**, 90, Nashville, died on June 29th at the St. Thomas Hospital. He was a leading figure in educational and historical circles.

**Dr. George Whitfield Holcomb**, 70, formerly of Nashville, died on June 26th in Birmingham, Ala., at University Hospital.

**Dr. Luther B. Hall**, 81, Newbern, died June 23rd at his home.



## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Knoxville Academy of Medicine

The Society conducted its regular monthly meeting on July 14th in the Academy headquarters building. The scientific program consisted of a panel discussion the subject "Adoption" medical, legal, psychological and social problems. The moderator was Dr. Elton Shouse. Panelists were Dr. Jack Chesney, Judge Richard N. Douglass, Dr. John H. Woliver, and Miss Beatrice Garrett.

Mr. Jerome Norman, Manager of the Physicians Business Bureau, Chattanooga, discussed briefly the experiences in this field at Chattanooga.

### Memphis-Shelby County Medical Society

The Society met in regular session on June 2nd at the Institute of Pathology. Dr. S. Gwin Robbins introduced the speaker for the scientific presentation. He was Dr. Robert G. Allen and his subject was "Open Cardiac Surgery." The address was illustrated by slides and followed by a film showing the surgical treatment of congenital aortic stenosis.

### Roane County Medical Society

The Society conducted its regular monthly meeting on June 30th in the Dining Room of the Oak Ridge Hospital. The program consisted of the subject "Malpractice Litigation." The speaker was Mr. Clyde Key, Attorney at Law, Knoxville, Tennessee.

### Chattanooga-Hamilton County Medical Society

The Society conducted its regular meeting in the Interstate Building on July 7th. The scientific program consisted of the following: "Chronic Pulmonary Insufficiency" by Dr. E. Wayne Gilley; "Carcinoma of the Lung" by Dr. John P. Carter and a case report by Dr. Fred Marsh.

## MEDICAL NEWS IN TENNESSEE



Mr. Roland G. Stetler

Mr. Roland G. Stetler, 27, Nashville, became affiliated on July 15th with the Tennessee State Medical Association as a staff assistant. Mr. Stetler, formerly of Dyersburg, will serve the Association in a number of administrative capacities, servicing committees of the Association and assisting in the conduct of the program of TSMA.

He was graduated from Dyersburg high school in 1950 and also attended Culver Naval School. He graduated from the University of Mississippi in 1954 where he received his degree in business administration. He comes to the Association after six years with Crawford and Company, Insurance Adjusters in Nashville. He has had considerable experience in administration. He will work closely with the insurance programs of TSMA.

Mr. Stetler is married to the former Carrie Council of Tiptonville, Tennessee. He resides with his wife and two children, Roland III and Mary Virginia at 811 Kendall Drive in Nashville.

### Heart Research Funds Allotted

Directors of the Middle Tennessee Heart Association voted recently to allocate



\$333,000 to heart research programs at Vanderbilt University Medical School. The six awards made to Vanderbilt investigators were: (1) \$18,000 to the laboratory of clinical physiology under direction of Dr. Elliot V. Newman. (2) \$5,000 to Dr. H. William Scott, Jr., and Dr. Rollin A. Daniel, Jr., department of surgery. (3) \$3,800 to Dr. Charles R. Park, department of physiology. (4) \$2,500 to Dr. Virgil S. LeQuire, department of anatomy. (5) \$2,500 to Dr. Victor A. Najjar, department of microbiology. (6) \$1,200 to Dr. Mildred Stahlman, department of pediatrics.

The Association also allocated \$6,200 to Meharry Medical College.

### **American Nuclear Society Convened in Gatlinburg**

The American Nuclear Society recently conducted its annual meeting in Gatlinburg with more than 1,000 scientists attending the three-day meeting. The Nuclear Society meeting was followed immediately by the International Physics Society convention.

A series of highly technical papers were read at both conventions.

### **Dr. Chapnick Named to Mental Health Post**

Dr. A. M. Chapnick has been appointed as psychiatrist in charge of the State Mental Health Department's forensic program, it was announced by Commissioner Joseph J. Baker. This program was established in 1957 by the Legislature to aid psychiatric patients at Central State Hospital.

### **Science Panel Conducted in Carter County**

A radioisotope-geriatric symposium was conducted on July 9th at the Lake Shore Restaurant near Elizabethton. The discussion sponsored by the Tennessee Academy of General Practice was cosponsored by Eli Lilly and Company. Four panelists who participated in the program were: Dr. Gould Andrews, Director of Clinical Research at Oak Ridge; Dr. Peecher Sitterson, assistant research director, Oak Ridge; Dr. Wingate Johnson, professor at Bowman Gray School of Medicine; and Dr. Emory Miller, associate professor at Bowman Gray.

### **TSPA Representative Appears Before House Ways and Means Committee**

Your attention is directed to page 340 of this issue of the JOURNAL under a special article reporting the testimony submitted by Dr. Joseph W. Johnson, Jr., Chattanooga, before the Ways and Means Committee of the House of Representatives in opposition to H.R. 4700, and the Forand Bill.

The Legislative Committee and physicians throughout the State have been most active in contacting members of Congress in opposition to the Forand Bill, which is outright socialized medicine. No action was taken on the bill in the hearings of the committee, but it is expected that it will come up again in the next session of Congress.

## **PERSONAL NEWS**

**Dr. William Cook**, Columbia, Maury County Health Director, has resigned the post of county physician. He will continue his duties as health director.

**Dr. Harold Alsobrook**, Alamo, announces the opening of his office for the practice of dermatology in Jackson.

**Dr. Carl A. Hartung** and **Dr. Arthur J. von Werssowetz**, Chattanooga, recently addressed the Chattanooga-Hamilton County Health Council at a special program dealing with the campaign for polio immunization.

**Dr. Marcus Stewart**, Memphis, has been re-named chairman of the Governor's Committee on Employment of the Physically Handicapped.

**Dr. Frank Tilton Smith**, Murfreesboro, has announced that he will become associated with **Dr. Jack C. Smith** at Jamestown.

"Health Problems of Mature People" was the topic of an address by **Dr. Charles V. Dowling**, Memphis, before the Downtown Exchange Club.

**Dr. Bart N. White**, Murfreesboro, has become associated with the Veterans Administration Hospital in Murfreesboro.

**Dr. Warren Hayes**, Springfield, has announced the opening of his office for the practice of medicine.

**Dr. R. David Taylor**, Dyersburg, has been appointed by the Governor to a four-year term on the Board of Trustees of Tennessee Tuberculosis Hospitals.

**Dr. Vernon Knight**, Nashville, has been appointed head of the Clinical Research Program of the public health service's national institute

of allergy and infectious diseases, Bethesda, Maryland.

**Dr. William J. Sheridan**, Chattanooga, recently appeared on a television program entitled "Financing Health Needs of the Aged."

**Dr. Hazel M. Nichols**, Knoxville, recently spoke before the Knoxville Chapter of the National Cystic Fibrosis Research Foundation.

Improved techniques in open cardiac surgery were outlined to members of the Memphis Thoracic Society where **Dr. Robert G. Allen** and **Dr. S. Gwin Robbins**, Memphis surgeons, led the discussions. Four new members were introduced. They were: **Dr. Robert H. Boone**, **Dr. Allen** and **Dr. H. Eugene Reese** of Memphis and **Dr. Daniel Copeland** of Jackson.

**Dr. Clarence Driver, Jr.**, Humboldt, has announced the opening of his office for the practice of urology in Jackson. He will be associated with **Dr. Allen Truex**.

**Dr. Charles R. Sullivan**, Oak Ridge, has been elected a Fellow of the Industrial Medical Association.

**Dr. Eben Alexander**, Knoxville, was recently honored by the Knoxville Rotary Club.

**Dr. John E. Neumann**, Paris, has been elected chief of staff of Henry County General Hospital. Elected vice chief was **Dr. E. P. Mobley, Jr.**, with **Dr. W. G. Rhea** named secretary. New members of the Executive Committee are **Dr. R. Graham Fish** and **Dr. W. G. Rhea**.

**Dr. W. C. Crowder**, Maryville, has been elected chief of staff of the Blount Memorial Hospital, succeeding **Dr. W. N. Dawson**. Elected vice chief was **Dr. John Yarbrough** and **Dr. Cecil Howard** was elected secretary. Others elected were **Dr. Robert F. Leyen**, chief of medicine; and **Dr. C. B. LeQuire**, chief of surgery.

**Dr. Harold Butler**, Trenton, announces that he will become a member of the Doctor's Clinic in Union City.

**Dr. Cleo Miller**, Nashville, was a recent speaker before the annual Father-Son Banquet at the Montgomery Hotel in Clarksville.

**Dr. Walter K. Hoffman**, Memphis, has been named president-elect of the Memphis Heart Association. **Dr. Robert F. Ackerman** became president of the Association on July 1, succeeding **Dr. J. Warren Kyle**. Among the directors named were: **Dr. Maury Bronstein**, **Dr. Francis H. Cole**, **Dr. Leo Wright**, **Dr. I. Ralph Goldman**, **Dr. Wilford H. Graff, Jr.**, **Dr. Jean M. Hawkes**, **Dr. Charles B. Olim**, **Dr. R. N. Paul**, and **Dr. S. Gwin Robbins**. All are from Memphis.

**Dr. E. C. Campbell, Jr.**, announces the opening of his office for the practice of medicine in Ripley.

of Surgeons will hold a clinical meeting at Vanderbilt University Medical School on October 17, 1959. The time is from 1:30 P.M. to 4:00 P.M. The program will consist of 8 twelve minute papers stressing clinical problems and presenting something that has not previously been published. The Society extends an invitation to any physician desiring to attend. The invitation is specifically issued to Tennessee physicians by **Dr. Harwell Wilson**, President of the Tennessee Chapter, ACS and **Dr. Baker Hubbard**, Secretary.

### Clinical Congress— American College of Surgeons

The 45th annual Clinical Congress of the ACS will be held in Atlantic City, New Jersey, September 28-October 2, 1959. Some 10,000 fellows of the college and guests from all over the world will gather to fulfill the purposes of this Congress. The program will present surgical developments through a wide variety of programs, including nine postgraduate courses, panel discussions, symposia, research reports, motion pictures, color closed-circuit telecasts as well as scientific and industrial exhibits.

Headquarters for the Congress will be Convention Hall, with some of the sessions scheduled at nearby hotels.

### Tennessee Medical Licenses Issued to Physicians

Reeder, Frank E., Trezevant  
Gilbert, James M., Nashville  
Strauss, Carl F., Jr., Memphis  
Griffin, Robert S., Hopkinsville, Ky.  
Burkhardt, Nathan L., Jr., Knoxville  
Chavannes, Albert H., Knoxville  
Couch, Billy L., Memphis  
Cunningham, Elbert C., Jr., Oak Ridge  
Millard, James H., Jr., Maryville  
Wiese, Lowell M., Nashville  
Wood, Emmett W., Memphis  
Woodbury, George R., Memphis  
Ragsdale, Julian L., Memphis  
Sanders, William B., Nashville  
Smoot, John D., Knoxville  
Flowers, William P., Trenton  
Gordon, Wendell E., Memphis  
Haymore, James M., III, Georgia  
Nussbaumer, Fridtjof E., Memphis  
Jones, Herbert, LaGrange  
Pomeroy, Howard C., Nashville  
Craddock, Culver C., Memphis  
Harrington, Robert L., Nashville  
Nesselhof, William, Jr., Kansas City, Mo.  
Rankin, Carl B., Memphis  
Bartone, John N., Elyria, Ohio  
Santoro, Carlos G., Chattanooga  
Smith, Frank T., Nashville  
York, Charles C., Roanoke, Va.  
Michals, Nicetas, Jr., Kingsport  
Hudson, Clavin H., Memphis  
Griffith, J. M., Columbia, S. C.  
Freeland, Doy L., Bruceton

## ANNOUNCEMENTS

### Tenn. Chapter— American College of Surgeons

The Tennessee Chapter of the American College



Kerschgens, Lambert J., Steubenville, Ohio  
 Killiffer, Frederick A., Harriman  
 Sitterson, Beecher W., Oak Ridge  
 Bernard, James W., Caruthersville, Mo.  
 Fortescue, Elliott N., Alcoa  
 Utterback, Robert A., Memphis  
 Michals, Herbert J., Kingsport  
 Kennedy, John J., Los Angeles, Calif.  
 Hutcheson, Janet K., Franklin  
 Lee, Anthony J., Memphis  
 Von Almen, Joseph F., Jr., Roanoke, Va.  
 Millis, James B., Nashville  
 Ragsdale, James H., Ripley  
 Stahlman, Gray E. B., Nashville  
 Fisk, Norman M., Hixson

### Tennessee Society of Anesthesiologists Postgraduate Assembly

The Tennessee State Society of Anesthesiologists will hold a Postgraduate Assembly on October 17th and 18th, in the Auditorium of the Pathology Building, University of Tennessee College of Medicine, Memphis, Tennessee. Speakers will include Alice McNeal, M.D., Birmingham; C. W. Shafer, M.D., Little Rock; Harry Slater, M.D., Montreal; Carl Wasmuth, M.D., Cleveland; and Robert Green, Attorney of Memphis. The following program is planned:

#### Saturday, October 17th

- 2:00- 3:00 P.M. Preoperative Preparation of the Patient  
 3:10- 3:40 P.M. Cardiac Arrest  
 3:45- 5:00 P.M. Medicolegal Problems in Anesthesia  
 5:30 P.M. Dutch treat dinner, Hospital Cafeteria  
 8:00 P.M. Football game—Memphis State vs. Florida State

#### Sunday, October 18th

- 8:40- 9:40 A.M. Complications of Anesthesia  
 9:40-10:00 A.M. Coffee break  
 10:00-11:00 A.M. Special Problems in Anesthesia  
 11:00-12:00 A.M. Instrumentation in Anesthesia  
 12:00- 1:20 P.M. Luncheon, Hospital Cafeteria  
 1:20- 2:20 P.M. Spinal Anesthesia  
 2:30- 3:30 P.M. Pediatric Anesthesia  
 3:30- 4:30 P.M. Question and answer period

There will be a registration fee of fifteen dollars for practicing anesthesiologists, one dollar for residents. Advance registration is desirable. Write John Jarrell, M.D., 2122 West End Avenue, Nashville 5, Tennessee.

Anesthesiologists interested in attending the football game must reserve tickets by September 1st. Write Mary F. Poe, M.D., 360 Madison Avenue, Memphis 3, Tennessee, indicating the number of tickets you desire.


### Tennessee Valley Medical Assembly

The seventh annual meeting of the Tennessee Valley Medical Assembly will be held September

28-29 at the Read House, Chattanooga. Advance registrations indicate that previous attendance records may be broken, according to Dr. Carl A. Hartung, President, Chattanooga-Hamilton County Medical Society, sponsor of the Assembly.


Dr. Louis M. Orr, President of the AMA, will be among the outstanding speakers. Doctors who will present papers before the Assembly and the titles of their presentations are as follows: Dr. John R. Paine, Buffalo, N. Y., "The Management of Perforated Peptic Ulcer"; Dr. Dwight E. Harken, Boston, Mass., "New Horizons in Cardiac Surgery"; Dr. Perrin Long, Brooklyn, N. Y., "Use and Abuse of Antibiotics"; Dr. J. Grafton Love, Rochester, Minn., "The Major Neuralgias and Their Surgical Treatment"; Dr. Louis M. Orr, Orlando, Fla., "The Decisive Edge"; Dr. Milton H. Erickson, Phoenix, Ariz., "Hypnosis in the Practice of Medicine"; Dr. Edgar V. Allen, Rochester, Minn., "The Natural History of Arteriosclerosis Obliterans"; Dr. Eugene A. Stead, Jr., Durham, N. C., "Minor Clinical Pearls"; Dr. Richard T. Shackelford, Baltimore, Md., "Newer Advances and Problems in Surgery of the Gastrointestinal Tract"; Dr. Lee Forrest Hill, Des Moines, Iowa, "Expected Behavior in Children with Emphasis on Adolescents"; Dr. Rachmiel Levine, Chicago, "Diabetes, Oral Medications"; Dr. Jaun A. Del Regato, Colorado Springs, Colo., "Treatment of Cancer of the Skin"; Dr. James Barrett Brown, St. Louis, Mo., "Plastic Repair Following Farm, Industrial and Automobile Accidents"; Dr. Lyon H. Appleby, Vancouver, British Columbia, Canada, "The Coeliac Axis in the Relation to the Expansion of the Operation for Gastric Carcinoma"; Dr. Arnold K. Kegel, Los Angeles, Calif., "Pathologic Physiology of the Pubococcygeus Muscle"; Dr. Rudolph L. Baer, New York, N. Y., "Light Sensitive Eruptions and Their Management"; Dr. George O. Eaton, Baltimore, Md., "Delayed Union in Femoral Neck Fractures."

Dr. Guy M. Francis is chairman of the committee in charge of the 1959 Assembly and Dr. Wm. G. Stephenson is co-chairman.



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# Journal of the Tennessee State Medical Association

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It is common knowledge that the diabetic patient is more prone to peripheral vascular disease than the nondiabetic. With advances in the surgical management of disease of the blood vessels there are opportunities to aid the diabetic in the presence of these complications.

## Peripheral Vascular Complications in Diabetes Mellitus\*

DOUGLAS H. RIDDELL, M.D.,† Nashville, Tenn.

It is an accepted fact that arterial occlusive disease usually has its onset at an earlier age in diabetic patients and that its progression is frequently more rapid than in the nondiabetic. There are exceptions to this, but generally metabolic and degenerative arterial disease is found to have progressed to a more advanced stage in the diabetic than in the nondiabetic of a corresponding age. Vascular problems in the diabetic are frequent and their prophylaxis is foremost in the physician's mind, being secondary only to regulation of the patient's diabetic state. Prophylaxis, such as abstinence from tobacco, careful foot hygiene, avoidance of injury to the toes and feet, diligent treatment of corns and callouses, early recognition of superficial infections of the feet and ingrown toenails and epidermophytosis, is essential.

Generalized progression of arterial occlusive disease may occur in any or all arteries, but it is commonly noted that the toes show evidence of arterial insufficiency or ischemia many times before any other evidence of such progression has manifested itself. This discussion resolves itself to, (1) treatment of gangrenous digits or portions of extremities, (2) treatment of generalized arteriolar and arterial occlusive disease, and (3) treatment of segmental occlusion of major arteries.

### Gangrenous Disease

We have all observed diabetic patients with good pulses in the dorsalis pedis and even in the posterior tibial arteries with gangrene of one or more toes. This has led to the general feeling that diabetic arteriosclerosis has a predilection for the "end-arteries" and that these arteries are occluded or thrombosed at an earlier stage than in nondiabetic patients. Patients are seen with one or two gangrenous or impending gangrenous toes characterized by discoloration, coolness, hypesthesia or anesthesia and bluish-red discoloration that have been treated since the onset of their digital symptoms by one or all of the following potentially dangerous methods. Many have been told to soak the feet in hot water or to apply dry heat. In addition, elevation of the foot is frequently advised apparently without complete comprehension of the problem. Direct application of heat to an ischemic extremity increases the metabolic activity over and above that which can be compensated for by increased vasodilatation. This frequently leads to gangrene. Elevation of the extremity on the other hand, although it may be edematous, further increases ischemia in an already arterially insufficient extremity and this may produce premature gangrene. Patients should be in a warm environmental temperature of 80 to 85 degrees Fahrenheit, without *direct* cold or warm applications. If the bed is kept level without elevation or dependency of the foot the edema will subside usually in 24 to 48 hours without losing the

\*From the Department of Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.

†Read before the meeting of the Tennessee Diabetes Association, April 14, 1959, Memphis, Tenn.

effect of some hydrostatic element to the patient's digital blood pressure. Such methods as Buerger's exercises or the oscillating bed have been used to some advantage but the feasibility is questionable. After gangrene ensues in one or more digits there is usually a secondary infection which requires antibiotics and bedrest. If the skin is broken with an open wound, tepid soaks or compresses help in reducing the local infection and keep the open wound exteriorized and drained. The line of demarcation between viable and nonviable tissue soon makes itself known, but premature amputation is fraught with the hazard in that secondary amputations may be more common in this group. If one or two toes only are involved in the gangrene a local amputation of these digits is adequate. This type of amputation should be carried out to include the head of the metatarsal so the adjacent viable toes are approximated and the dead space is obliterated. If more than two toes are involved one has two choices. If either the posterior tibial or dorsalis pedis arterial pulse is felt a transmetatarsal amputation as described by McKittrick<sup>3</sup> is feasible. If no pulses can be felt in the foot, however, it is unlikely that a transmetatarsal amputation will heal and it may be worthwhile to try a local digital amputation in one or more toes with a concomitant lumbar sympathectomy. If, after amputation of the toes, the gangrene extends up into the foot and the wound fails to heal a higher amputation can be carried out.

In younger diabetics a "below-the-knee" type of amputation may be adequate, but in older diabetics a supracondylar amputation gives more assurance of a healed amputation stump and less likelihood of secondary amputation. If the patient has a palpable popliteal pulse a "below-the-knee" amputation may be more advisable regardless.

Gangrene of the heel or sole of the foot with ulceration is not uncommon in the diabetic patient. Usually this results from an area of undue pressure or direct trauma. Failure to heal requires soaks and debridement. Occasionally a skin graft applied to this defect is successful but may have to be supplemented with a lumbar sympathectomy.

### Generalized Arteriolar Occlusive Disease

Next to gangrenous disease of the toe and foot, one is most commonly confronted with problems of generalized ischemia of one or both lower extremities. This may manifest itself with intermittent claudication of the calf but frequently it is not that simple. One of the most difficult problems with which we are confronted in vascular surgery is the diabetic or arteriosclerotic patient who has pain at night with a burning, tingling foot associated with rubor, some edema and temperature change. Diabetic neuropathy is so closely associated with ischemia many times that the evaluation of the problem is difficult. The triad of subcutaneous hemorrhage followed by patches of gangrene, increased capillary fragility and anesthesia, together with other neurotrophic lesions are typical of peripheral diabetic lesions<sup>1</sup>. The patient may have an acceptable femoral pulse and even a popliteal pulse, but seldom are foot pulses present if the entire foot and lower leg is involved. If pulses are found in the foot in this type of patient, one suspects neuropathy to be responsible for the pain. During regulation of diabetes which frequently has gone askew during this period of pain, with or without infection, it is well to proceed cautiously and conservatively. With pain at rest, thereby depriving the patient of sleep at night because of a loss of hydrostatic arterial blood pressure in the foot, elevation of the head of the bed on six inch blocks will enable some of these patients to sleep comfortably. As the arterial blood pressure is lowered during the night and the patient is flat in bed the ischemia to the peripheral parts is increased. In addition to elevation of the head of the bed a vasodilator such as Arlidin\* or Priscoline\*\* is given. A moderate amount of walking is advised, although sitting and standing in excessive amounts is not wise at this stage. Such evaluations as studies of the pulse, temperature, oscillometric determinations and plain x-ray films of the lower extremities may give one valuable information as to the extent and degree of vessel calcification (Fig. 1) and the location of the ob-

\*Arlington-Funk Laboratories, New York, N. Y.

\*\*Ciba Pharmaceutical Products, Inc., Summit, N. J.



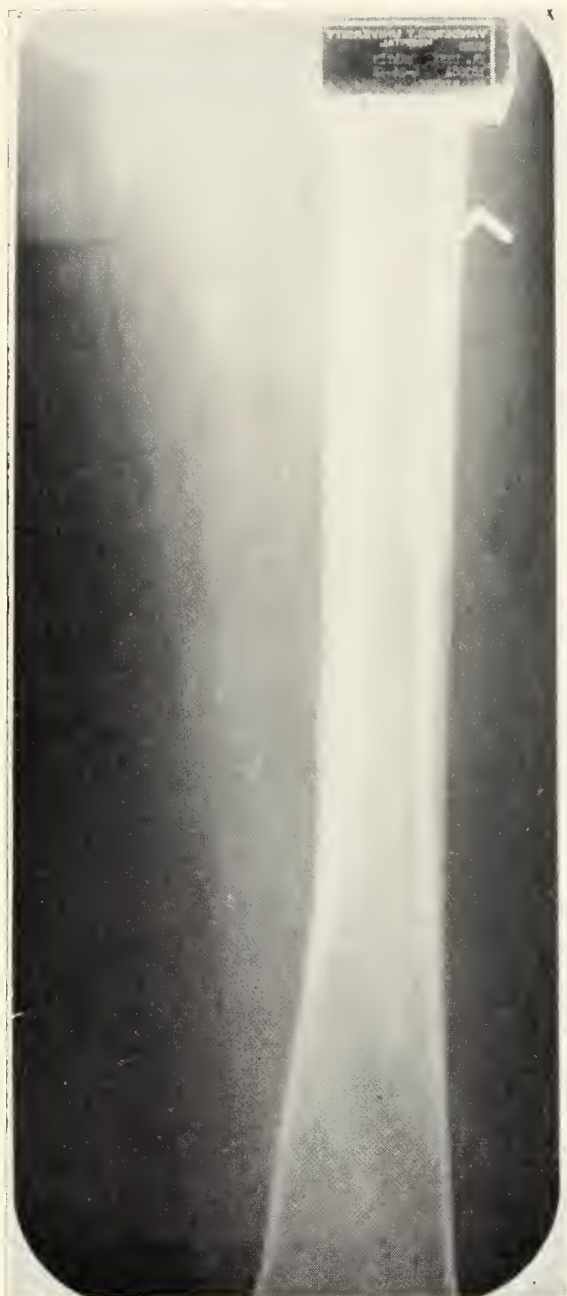


FIG. 1. Calcification of the superficial femoral artery in a 44 year old male diabetic.

struction. Most frequently in diabetics we find a generalized arteriolar and small arterial obstruction. This constitutes the greatest problem. The lumbar sympathectomy is advised frequently under these circumstances, if the outlook for longevity justifies it.

Lumbar sympathectomy has proved to be a valuable procedure with a wide range of application in the treatment of arterial insufficiency in the lower extremities for the past 35 years. Although Claude Bernard

described increased blood flow following sympathetic denervation almost a century ago, it was not until 1924 that surgeons began to make a practical application of sympathetic denervation in disorders of the peripheral circulation<sup>1</sup>. The value of sympathectomy in those disorders in which vasospasticity played a primary role was promptly accepted, but 20 years passed before its value was realized in obliterative arterial disease. Apparently the mode of help in obliterative disease of the arteries is through the development of collateral circulation in the smaller unaffected vessels, although there is apparently no alteration in the progress of the disease process itself attributed to lumbar sympathectomy<sup>2</sup>.

Sympathetic denervation not only reduces the pain associated with arterial insufficiency but also eliminates the afferent pathway which contributes to reflex vasospasm. An additional benefit can be attributed to the abolition of sweating preventing maceration of the skin, but in cases of marked arterial insufficiency it may actually increase the need for blood flow by increasing heat loss through evaporation. If increased arterial oxygen supply to the muscle can assure better metabolism and less pain, the functional limitations imposed on the extremity by ischemia can be improved. In a recent study of 200 consecutive lumbar sympathectomies for all conditions by Kirtley and associates<sup>3</sup>, exactly 100 patients had lumbar sympathectomy for arteriosclerotic obliterative disease. Of these 100 patients 76% received satisfactory results following lumbar sympathectomy. The criteria for satisfactory results consisted of the amelioration of pain at rest, improvement of claudication or ulceration, arrest of gangrene, and no subsequent development of gangrene. The remaining 24% were unaffected apparently by lumbar sympathectomy except in 4 cases in which "paradoxical gangrene" ensued. Thirty of the 100 patients had diabetes mellitus. In general, the progress of disease in these diabetics was accelerated as contrasted to the nondiabetics. Eight, or one-third, of the unsatisfactory results were in diabetics, a finding which suggests that the anticipated satisfactory result may be just as great in the diabetic as in the nondiabetic, if dia-



betes is adequately controlled and the operation is undertaken to improve the ischemia incident to the arteriosclerosis.

Skin temperature studies before and after a sympathetic block with local anesthesia failed to be consistent in predicting a satisfactory or unsatisfactory result. Although the majority of these patients may fail to exhibit any significant preoperative response to blocking, this finding *alone* should not be observed as a contraindication for lumbar sympathectomy. The degree and completeness of lumbar sympathetic block is difficult to evaluate, and since one must depend on the development of the small collateral arterioles over a period of several months for optimal results, a single paravertebral block obviously may be misleading unless a high degree of spasm were associated with the obliterative disease.

Some absolute contraindications for lumbar sympathectomy used are as follows: (1) Severe cardiac, cerebral, or renal dis-

ease so frequently present in these patients, (2) deep gangrene proximal to the toes, or (3) rapid and progressive thrombosis of major arteries.<sup>2</sup>

Other more relative contraindications are, (1) marked atrophy of the skin and subcutaneous tissues of the foot and leg with rubor of the foot, and (2) constant intractable pain at rest not relieved by peripheral or paraspinal nerve block or more conservative therapy, such as vasodilators and elevation of the head of the bed. Neuritis may be responsible for some of these symptoms.

After sympathectomy has been elected there are additional factors during the operative and postoperative period which may have merit in affecting the prognosis in an individual case, that is, (1) preoperative regulation of the diabetes mellitus and the correction of cardiorenal abnormalities as much as is possible in the preoperative period, (2) *total* abstinence from smoking in

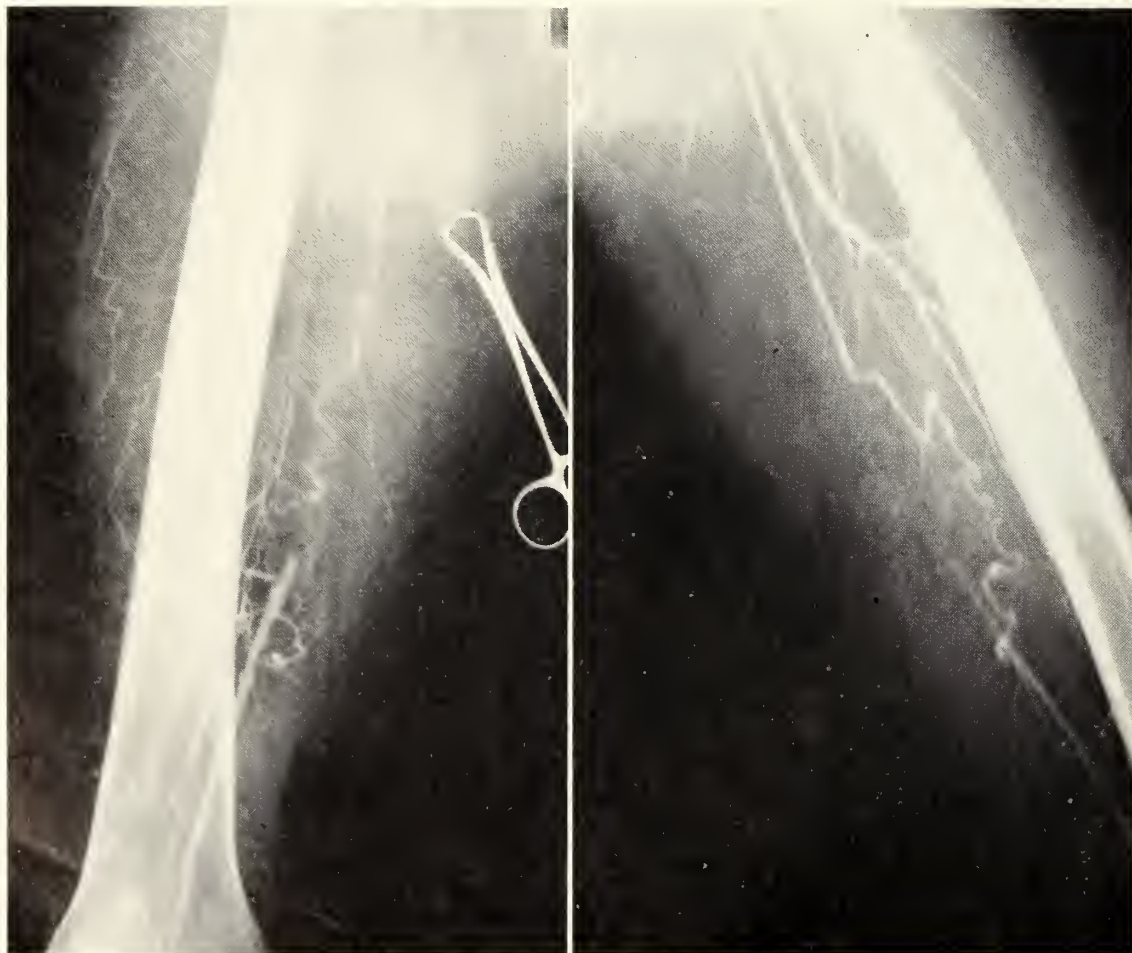


FIG. 2. Bilateral femoral arteriography demonstrating segmental occlusion in both superficial femoral arteries treated later by femoropopliteal by-pass graft in two stages.

all patients exhibiting signs of arterial insufficiency, (3) occasional thromboendarterectomy or by-pass arterial grafts which may prove of value in cases of segmental occlusion, (4) careful and judicious use of anticoagulant therapy in the early post-operative period in carefully *selected* cases which may forestall the thrombosis in patients with impending gangrene (the hazard of these drugs in the postoperative patient must be fully realized), and (5) gradual resumption of activity with slow walking and frequent resting, meticulous diabetic control, and careful instruction regarding foot hygiene and general care of the lower extremities.

### Segmental Occlusion of Major Arteries

The third category of patients are those with segmental obstruction of major arteries. Diabetes mellitus does not preclude the insertion of a "by-pass" arterial graft just as in the nondiabetic if the clinical findings and arteriograms indicate such treatment is feasible.

Segmental occlusion in the superficial femoral artery of the diabetic produces an identical clinical picture as in the nondiabetic. Four such diabetic patients have been treated surgically in recent years by me with insertion of a "by-pass" arterial graft from the femoral to the popliteal artery. In one such patient a bilateral procedure was done in two stages (Fig. 2). Ischemia of the toe or foot in the diabetic was absent popliteal and foot pulses should make one suspicious of femoral segmental occlusion. Operative femoral arteriograms may substantiate the diagnosis. Appropriate "by-pass" arterial grafting has its place then in the diabetic as well as the nondiabetic patient.

Unilateral or asymmetrical vascular occlusion of the lower extremity suggests segmental atheromatous obstruction. This may be confirmed by the presence of a femoral pulse and the absence of the popliteal pulsation. The exact location and degree of retrograde filling distally will then determine the feasibility of a femoropopliteal "by-pass" graft insertion.

If operative arteriogram reveals a femoral artery that is unsuitable for arterial grafting a lumbar sympathectomy alone is done

and the small inguinal incision is closed. The "percutaneous" femoral arteriogram has been abandoned because of the larger incidence of thrombosis than is found with arterial puncture under direct vision.

Segmental occlusion of the iliac artery or terminal aorta is not uncommon in the diabetic (Fig. 3). Investigation and surgi-



FIG. 3. Aortography demonstrating partial obstruction by a plaque at the aortic bifurcation and segmental occlusion of the left common iliac artery in a 60 year old diabetic.

cal treatment with a "by-pass" graft or thromboendarterectomy is applied here as in the nondiabetic, although the peripheral "run-off" or patency of the distal arteries below the inguinal region must be established.

### References

1. de Tekats, G.: Vascular Surgery. Philadelphia. W. B. Saunders Company, 1959.
2. Kirtley, J. A., Jr., Garrett, S. Y., and Martin, R. S.: An Evaluation of Lumbar Sympathectomy in 200 Consecutive Cases of Peripheral Vascular Disorders, *Surg.* 33:256, 1953.
3. McKittrick, L. S., McKittrick, J. B., and Risley, T. S.: Transmetatarsal Amputation for Infection or Gangrene in Patients with Diabetes Mellitus, *Ann. Surg.* 130:826, 1949.
4. Royal, N. D.: The Operation of Sympathetic Ramisection, *Med. J. Australia* 1:587, 1924.
5. Zimmerman, L. M., and Levine, R.: *Physiologic Principles of Surgery*. Philadelphia. W. B. Saunders Company, 1957.



**An appeal is made for early diagnosis by proper and routine rectal examination, and immediate action if suspicious findings are present.**

## CURABLE PROSTATIC CANCER\*

JOHN M. TUDOR, M.D., Nashville, Tenn.

The element of time is one of the most important considerations in dealing with patients with malignant diseases. Since the mere passing of time will change an early curable lesion into an inoperable and incurable state, the importance of early detection and the initiation of a definitive attack becomes a self-evident truth in treating patients with malignancies. Many malignancies are curable if diagnosed early, and cancer of the prostate lends itself admirably to detection in the initial stages of the disease and at such time as radical surgery will effect a cure in many instances. Cancer of the prostate is easily diagnosed since 90% of the early cases are readily detected by digital rectal examination of the prostate.

Prostatic cancer is common. It occurs most often after the age of 45; 14 to 18% of men over the age of 45 will have prostatic cancer as a routine autopsy finding. It is becoming more common because our population is aging. In 1850, 12.4% of the male population was over 45, and in 1950, 28.4% of the male population was over 45. It seems also to be increasing in occurrence. According to Rich, in 1937, 14% of the men over 50 suffered from cancer of the prostate, and in 1953, according to Baker 24% of the men over 50 were afflicted. It is responsible for the symptoms in about 10 to 15% of all men with prostatism.

### Clinical Considerations

Pathologically, cancer of the prostate is an adenocarcinoma. It originates in the posterior portion of the gland over 90% of the time. Therefore, symptoms of prostatism occur late in the course of the disease. It spreads by invasion of the perineural lymphatics primarily to the bones of the lumbar spine and pelvis but also to the liver, lungs

and brain. It goes without saying that metastatic lesions are late.

The symptoms in the early stages of the disease are usually absent, or at most very mild symptoms of prostatism, and occasionally symptoms of prostatitis occur. The symptoms of prostatitis, however, are unrelated to the early malignant lesion. The late symptoms are those of prostatism, with which you are all familiar, bone pain from metastasis as well as symptoms of distant metastases elsewhere, and very late renal failure due to ureteral obstruction.

The rectal characteristics of cancer of the prostate are singular. The early lesion is a firm or stony hard nodule which is small and present in an otherwise benign feeling gland. Ninety per cent of the time this is located posteriorly where it is readily available to the examining finger. The location of the early lesion varies and the gland is movable, not fixed, and the seminal vesicles are free of tumor.

The late carcinoma of the prostate will exhibit varying degrees of enlargement. It will be stony hard, irregular and fixed. The seminal vesicles may be involved. Rectal ulceration is rare.

The differential diagnosis of cancer of the prostate gland is not difficult. Prostatic calcification, which occasionally causes confusion, can be ruled in or out by the simple expedient of obtaining a plain x-ray film of the pelvic area. Tuberculosis and other rare granulomatous lesions can be differentiated by the clinical picture plus the bacteriologic studies. Localized areas of non-specific inflammation which may occasionally be very hard and feel much like an early cancer must be ruled out by biopsy, as is also true of localized areas of nodular or benign hyperplasia.

The diagnosis of cancer of the prostate is easy to make in the vast majority of instances. Frequently digital rectal examina-

\*Presented before the meeting of the Tennessee State Medical Association, April 15, 1959, Memphis, Tenn.



tion of the prostate will diagnose the lesion. Open perineal biopsy with frozen section is definitely indicated for early suspicious lesions followed by radical extirpation of the prostate if the frozen section is positive. Transurethral resection as a method of biopsy is far less desirable than the open biopsy since a negative report is not conclusive. Needle biopsy has been abandoned for the same reason and cytology of the expressed prostatic secretion since it is singularly unreliable. Acid phosphatase determination, if elevated, may be useful and x-ray studies of the lumbar spine, pelvis and chest should be routine in scanning the patient for metastatic lesions. Again, however, in the vast majority of instances the examining finger will, if not make the diagnosis during rectal examination, lead to suspicion, and a vigorous definitive course of action should follow.

Treatment

Palliative treatment for the inoperable or late cases consists of relieving the bladder neck obstruction, and this is best done by transurethral resection of the prostate, orchiectomy and the administration of female hormone. Unfortunately palliation is all we can offer to over 90% of the victims of prostatic cancer.

A curative approach demands routine rectal examinations on all male patients over 40, with perineal exposure, biopsy and frozen section of suspicious lesions followed by radical removal of the prostate and seminal vesicles if the frozen sections are positive. If they are negative we simply close the wound and wait for the permanent sections and if these also prove negative the incident is completed. However, an occasional frozen section will be negative but the fixed section positive in which case one must go back in 36 to 48 hours and complete the radical operation.

The operability of cancer of the prostate is the most discouraging facet of its treatment. The operability is reported variously between 5 and 20 per cent. In any event, the medical profession's record for diagnosing cancer of the prostate in an operable stage is miserable. This is not necessarily the fault of the profession. However, we are loathe to point out that our operability

rate in this series is much lower than the national average. (Table 1.)

Table 1

OPERABILITY	
1. Reported in from 5 to 20% in the literature	
2. Walter Reed Army Hospital Series	
11 year period, 1940-1951	
100 patients with prostatic cancer	
56 patients operable—56%	
<i>Reason: Routine rectal examination during annual Army physical examination.</i>	
3. This Series	
5 year period, January 1953-January 1958	
669 new cases of prostatic cancer	
ONLY 18 OPERABLE PATIENTS—2.69%	
During this period	32 prostates biopsied
Benign	14 patients
Malignant—radical removal	18 patients

The most shining example in the medical literature for all time is the series reported by Kimbrough from the Walter Reed Army Hospital. In an 11 year period, from 1940 until 1951, the urologic service diagnosed prostatic cancer in 100 patients and in 56% of these patients the condition was operable. The reason is apparent: Routine rectal examinations during the annual army physical led to the suspicion of early prostatic cancer and a definitive program of therapy was initiated at once.

The series in this paper represents a period of 5 years from January, 1953 to January, 1958. In this period we saw 669 new cases of prostatic cancer. Thirty-two prostates were biopsied with negative findings in 14 patients and positive findings of malignancy in 18 patients. Therefore, in 669 men with prostatic cancer we found 18 operable patients for a percentage of operability of 2.69 per cent. These 18 patients were subjected to radical perineal prostatectomy with one exception who had a radical retropubic prostatectomy. The results were as follows.

In this series we have had no operative deaths and to date no later deaths. The complications include stricture at the site of the urethrovesical anastomosis, 6 patients; epididymitis, 3 patients osteitis pubis (following the 1 retropubic operation), 1 patient; perineal fistula (which healed in 6 weeks), 1 patient; recto-urethral fistula, 1 patient; impotence, 18 patients. (Table 2.) Eleven patients had normal urinary control immediately. Two patients still have stress incontinence. Three patients had temporary incontinence. One patient is permanently incontinent and one patient is maintained

Table 2

COMPLICATIONS	
Operative deaths	0
Later deaths	0
Stricture—site of urethrovesical anastomosis	6 patients
Epididymitis	3 patients
Osteitis pubis (retropubic)	1 patient
Perineal fistule (healed 6 weeks)	1 patient
Recto-urethral fistula	1 patient
Impotence	18 patients

on suprapubic catheter drainage. (Table 3.)

The results in this series lead us to believe that the perineal operation is effective in dealing with early cancer of the prostate. In the series there are 18 living pa-

Table 3

CONTINENCE OF URINE	
Normal control	11 patients
Stress only	2 patients
Temporary incontinence	3 patients
Permanent incontinence	1 patient
Suprapubic catheter	1 patient

tients. Two patients are living with known recurrent cancer and 16 patients are living without recurrent cancer at this writing. The time intervals involved 12 to 24 months, 3 patients; 24 to 36 months, 6 patients; 36 to 48 months, 3 patients; 48 to 60 months, no patients; over 60 months, 4 patients. Of the patients with known recurrence, one is alive at 57 months and is doing well clinically, one is alive at 45 months and doing well clinically. (Tables 4 and 5.)

It becomes readily apparent that cancer of the prostate is a malignancy to which

Table 4

RESULTS	
Living	18 patients
Living with known recurrent cancer	2 patients
Living with recurrent cancer	16 patients
12-24 months	3 patients
24-36 months	6 patients
36-48 months	3 patients
48-60 months	0 patients
over 60 months	4 patients
Patients with known recurrence	
One alive 45 months—doing well clinically	
One alive 57 months—doing well clinically	

radical extirpation can be applied with encouraging results. It would seem that the largest job before us is to increase the operability per cent and thus effect more cures. This could be done by the following program carried out with relentless determination, (1) public education of the male population as has been done for women relative to breast and uterine cancer, (2) digital examination of the prostate in all men over 40 *routinely*, (3) vigorous and definitive attack on suspicious lesions.

### Conclusions

Early cancer of the prostate is amenable to radical removal. Larger series, Belt<sup>1</sup>, Jewett<sup>2</sup>, indicate 50% or better 5 year survival. Results of radical removal are decidedly encouraging. The scarcity of operable cases is decidedly discouraging. The male population must be made conscious of the importance of a yearly physical examination. The profession must be made con-

Table 5  
SUMMARY

Age	Urinary Symptoms	Operation	Complications	Urinary Control	Recurrence	Elapsed Time
50	Prostatitis	Perineal Aug., 1957	None	Normal	None	20 mos.
57	Mild Prostatism	Perineal July, 1957	None	Early stress Normal now	None	22 mos.
56	None	Perineal Feb., 1956	Epididymitis	Mild stress	None	38 mos.
57	Mild Prostatism	Perineal Jan., 1957	Epididymitis	Normal	None	28 mos.
72	None	Perineal Sept., 1956	None	Incontinent	Local 9 mos. P.O.	43 mos.
56	Mild Prostatism	Perineal July, 1956	Perineal fistula	Normal (after closure of fistula)	None	34 mos.
66	None	Perineal July, 1956	Stricture	Temporary in- continence	None	34 mos.
57	None	Perineal April, 1956	None	Normal	None	36 mos.
70	None	Retropubic Oct., 1956	Osteitis pubis; stricture	Stress inconti- nence	None	30 mos.
49	Prostatitis	Perineal March, 1957	None	Normal	None	12 mos.
65	None	Perineal Sept., 1955	Stricture	Normal	None	44 mos.
75	None	Perineal Oct., 1954	None	Normal	Local 18 mos. P.O.	55 mos.
73	None	Perineal April, 1954	None	Normal	None	62 mos.
66	Mild Prostatism	Perineal April, 1953	Epididymitis	Incontinent 6 mos. Normal now	None	72 mos.
58	None	Perineal April, 1953	None	Normal	None	72 mos.
69	Prostatitis	Perineal, Jan., 1957	Rectourethral fis- tula; stricture	Suprapubic cys- totomy	None	28 mos.
55	None	Perineal May, 1953	Stricture	Normal	None	74 mos.
60	Mild Prostatism	Perineal May, 1957	Stricture	Normal	None	24 mos.

scious of the importance of digital rectal examination of the prostate in all men over age 40; the suspicious lesions must be attacked definitively and with vigor.

### References

1. Belt, Elmer, and Turner, Roderick D.: Study of 229 Consecutive Cases of Total Perineal Prostatectomy for Cancer of Prostate, *J. Urol.* 77:62, 1957.
2. Jewett, Hugh J.: Radical Perineal Prostatectomy for Early Cancer, *Bull. New York Acad. Med.* 34:26, 1958.

### Discussion

FONTAINE B. MOORE, M.D., Memphis: I am delighted to open the discussion of Dr. Tudor's excellent clinical paper. I am immediately impressed by the large number of cases of carcinoma of the prostate which Dr. Tudor and his colleagues have examined in the past five years. The number of cases in which he has been able to offer a possible cure is admittedly low. Unfortunately, nearly all urologists at the present time have a similar low percentage rate among patients who may be candidates for radical prostatic surgery. This percentage figure is directly proportional to the number of careful rectal examinations our medical colleagues perform on men over 40 years of age. When one considers that only the wall of the rectum and a thin layer of fascia exists between the examining finger and a possible internal cancerous growth, it is inconceivable that more early cancerous prostatic disease cannot be diagnosed. My personal belief is that when the local physician first palpates a suspicious lesion in the prostatic gland, he is too prone to observe this nodule with subsequent rectal examinations rather

than encourage the patient to have immediate consultation and subsequent biopsy, as Dr. Tudor has outlined. The simplicity and innocuous course of a negative biopsy is very small premium to pay when one considers the end result of a full blown inoperable carcinoma.

Dr. Tudor's results in the 18 operable cases reported are quite good. Of these none have expired with or without cancer. In his reference to national averages, he failed to point out that this is much higher cure rate than most series report. I hope he will continue to report on this group of patients over the years. Two patients in the group have known recurrences. It would be of interest to know if these are local or distant metastasis. Also, I would like to know the degree of stricture formation encountered in the cases so reported—that is, does the stricture constitute any real problem in the late post operative course.

Dr. Tudor did not mention the so called "occult carcinoma of the prostate," which is not suspected pre-operatively and found on examination of prostatic tissue removed at transurethral prostatic resection. I would like to ask him how he handles these patients in the young relatively age group from 45 to 60 years of age. Also, I would like ask him if he has had any experience with radical prostatectomy on glands which seemed inoperable on initial examination, but whose fixation and induration to the surrounding structures responded to estrogenic therapy to the extent that they were deemed operable.

I want to thank Dr. Tudor for the opportunity of discussing his excellent paper. It has been a real pleasure.



A relatively new operation is described and indications for its use outlined.

# Tracheal Fenestration Operation For Pulmonary Insufficiency: Preliminary Observations\*

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## Introduction

Tracheal fenestration is a surgically created epithelized opening into the cervical trachea partially or completely obstructed by surgically produced skin folds or valves.

Fenestration offers important advantages over conventional tracheostomy. It has no wound surface, thus avoiding the necessity of keeping its walls apart by a cannula. It does not interfere with phonation because of the covering skin flaps. For the same reason, it does not affect the cough mechanism. Tracheal fenestration is recommended when such a communication needs to be maintained for a prolonged period or for the survival period.

The feasibility of easy insertion of a catheter through the fenestration suggests its therapeutic possibilities in suppurative diseases of the lung. The advantage of effortless elimination of the drainage is obvious in patients with advanced pulmonary suppuration who are not candidates for excisional surgery and who are unable to perform postural drainage. At an early stage of pulmonary insufficiency, it may provide the means of maintaining an airway free of obstructing secretions thus permitting oxygenation and elimination of carbon dioxide. Elective tracheal fenestration frequently obviates the need for mechanical ventilation and the occurrence of "hypoventilation crises."

## Hypoventilation Crises

The mode of action of tracheal fenestration in relieving pulmonary insufficiency has been postulated by Mayer and collaborator.<sup>3, 4</sup> The clinical course of a patient with low pulmonary reserve is characterized by recurrent attacks of what is best described as a "hypoventilation crisis." This may end either in sudden apnea and asphyxia, or lead to slowly progressive cor pulmonale and cardiopulmonary failure. Patients surviving these attacks may be restored to a *status quo* and continue to live within the limits of their low pulmonary reserve until the next crisis arises. Mostly, however, each attack further diminishes cardiopulmonary reserve and brings the end nearer. Therefore, by the prevention of such attacks, life may be prolonged.

Hypoventilation crises are usually precipitated by respiratory infection, by over-sedation, by excessive oxygen inhalation, or by mild congestive failure. Such circumstances usually bring on an increase of bronchial secretion. Failure to promptly eliminate this leads to stagnation, inspissation, and increased viscosity of secretions, resulting in progressive bronchiolar obstruction, increased trapping of air, and decreased respiratory function. The latter becomes further aggravated by persistent cough and increased anoxia. All of these bring about excessive carbon dioxide retention, hypoxia, and increasingly labored breathing. Exhaustion by exaggerated breathing effort resulting in hypoventilation closes the vicious circle, culminating in acidosis followed by congestive failure.

## Aid to Therapy

Tracheal fenestration, making possible efficient intubation and aspiration of the air-

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way as often as necessary, can reverse this process. It relieves obstruction of bronchioles by elimination of secretions and decreases excessive coughing. It may relieve hypoventilation through frequent aspiration of air from the deeper airways, creating sharp expiratory currents which may act to untrap air and deflate air pockets in the lung. Treatment by fenestration can break the vicious cycle at any point and quickly bring the hypoventilation crisis to an end. It may also prevent such crises by timely aspirations that can keep the airways patent and ventilated. Obviously, treatment must be applied early, before the pulmonary reserve becomes too low.

Tracheal fenestration is of great advantage in inhalation therapy. Mechanical ventilators, bronchodilators, and detergent aerosols are more efficient by the direct way of endotracheal tubes.

#### Preliminary Report

The indications and contraindications still remain to be clarified by future experience in a large number of patients. In the interim, the decision for operation must be based on long-range clinical study of patients with evaluation of their pulmonary reserve. Chronic broncho-pulmonary diseases with excessive bronchial secretions are by themselves not to be considered indications for this treatment unless they are associated with pulmonary insufficiency of irreversible degree. Until more is known about the procedure and its potentialities, indiscriminate use of tracheal fenestration is to be cautioned against.

#### Surgical Technic of Rockey

A description of Rockey's operation<sup>1,2</sup> is as follows: A four- to five-inch long transverse skin incision is made over the anterior aspect of the mid-third of the neck. The incision is extended in such a manner that one skin flap is outlined above, and one below, the initial transverse incision. The skin flaps extend about one and one-half inches in transverse direction beyond the midline. Through the original transverse incision, the platysma is incised in a transverse direction to about one-half inch distant to the right and left of the midline. The trachea is then exposed by splitting the strap muscles. A 1.25 cm. length of two

neighboring tracheal cartilages is excised with the underlying mucosa. The edges of the tracheal window are covered with inverted full-thickness skin. At the right and left sides of the tracheal opening this is accomplished by inverting the distal margin of each of the skin flaps and fixing them to the tracheal mucosa with interrupted through-and-through figure-of-8 sutures of No. 0 silk. The upper and lower margins of the tracheal window are covered by inverting the angle of the upper and lower triangular skin surfaces with similar suture technic. The skin flaps are doubled without dissecting them from the underlying subcutaneous tissue layer. The approximated edges of the doubled skin flaps are kept together with interrupted No. 000 silk sutures, forming a door-like skin valve on the right as well as the left side of the outer aperture of the skin tube leading to the tracheal opening. The residual wound surface is eliminated by approximating the remaining skin edges with interrupted No. 000 silk.

The base of each of the opposing skin flaps may be brought nearer to the midline. The distal margin of each of the opposing skin flaps covers two of the four edges of the tracheal window. The left skin flap covers the left and lower margins, and the right flap, the right and upper margins of the window.

Rockey thinks the addition of a temporary tracheostomy below the level of the fenestration to be of added value. The tracheostomy is utilized for the first two or three weeks, allowing time for the fenestration to heal. When this is accomplished, its clinical function starts and the tracheostomy below the fenestration is allowed to heal. In a few instances the door-like skin valves were not in full opposition by the time complete wound healing had taken place. In such a situation a two-inch long transverse skin incision was made parallel with, and about one inch distant from, the base of the valve on each side. This incision was then closed vertically, which brought the skin valves into an air-tight opposing position.

#### Experience at Kennedy Hospital

We have performed four fenestrations and two permanent tracheostomies in the past nine months. Several other patients



were so acutely ill that emergency tracheostomy only was performed. On these patients having emergencies with pulmonary insufficiency and who survive, we may perform a fenestration.

With the first three fenestrations, the stomal skin flaps differed from Rockey's and a tracheostomy cannula was placed through the window. In each of these cases only one skin flap survived; nevertheless, the occlusion of the stoma allowed normal phonation. Our patients have not been able to cough out their secretions, but frequent suction performed by the patient has given marked subjective improvement. Two of these patients are doing well at home, one is recently postoperative, and one is still hospitalized because his family is unable to care for him at home. The most recent fenestration was performed by the originally reported Rockey technic using four flaps. No tracheostomy cannula was inserted and both flaps healed well. (Figs. 1 and 2.)

In all cases there has developed moderate suppuration which responded to warm compresses. No surgical drainage has been required. There has been local induration for four to six weeks; however, the flaps have been pliable after this time.

Due to the marked elevation of the rib

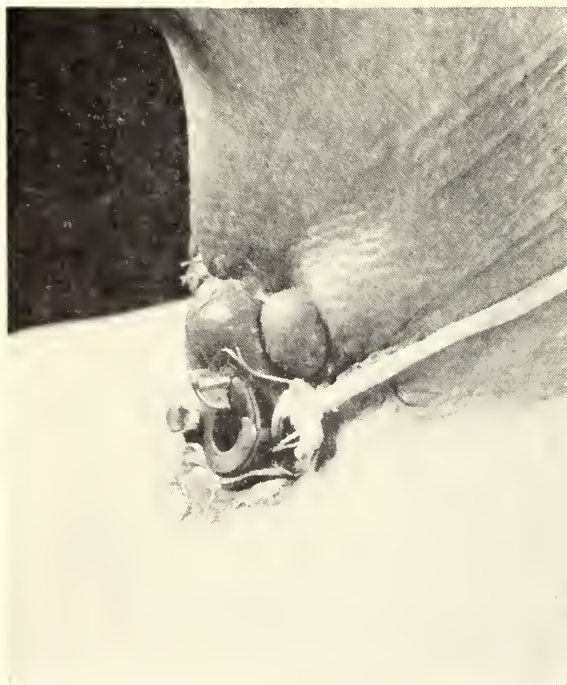


FIG. 1. Tracheostomy and fenestration one week postoperative.

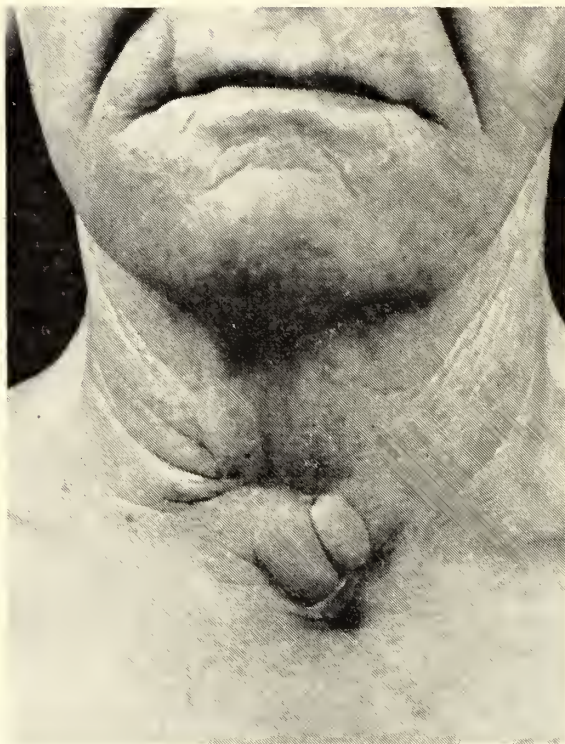


FIG. 2. The fenestration one month postoperative with tracheostomy healed.

cage and clavicles, the upper trachea has been reached through the lowest portion of the suprasternal notch making it difficult to perform a tracheostomy.

#### Discussion

The incidence of pulmonary insufficiency is expected to increase during the next decade when the number of individuals over 65 years of age may increase by 60 per cent. Additional patients with pulmonary insufficiency will result from surgical treatment of pulmonary lesions.

Tracheostomy is indicated for acute pulmonary insufficiency with obvious anoxia. The fenestration procedure is used for patients with chronic pulmonary insufficiency who have no hope of relief.

The use of tracheostomy and fenestration simultaneously is not desirable. Complete fenestration blocking by the skin flap may not be as desirable or beneficial as a persistent small opening preventing tracheal obstruction by the patient.

Further experience with the procedure is needed to better define the most desirable operative technic, the indications, contraindications, and the improved prognosis in these patients resulting from its proper use.



### Conclusions

Tracheal fenestration is a logical procedure for certain patients with chronic incurable pulmonary insufficiency. Further use of the procedure is warranted.

### References

1. Rockey, E. E., Mayer, E. and Rappaport, I.:

Tracheal Fenestration, *Dis. Chest* 30:224, 1956.

2. Rockey, E. E.: Surgical Technic of Tracheal Fenestration, *Am J. Surg.* 94:486, 1957.

3. Mayer, E., Bolzsik, C. F. and Rappaport, I.: Treatment of Pulmonary Insufficiency by Tracheal Fenestration, *J.A.M.A.* 167:696, 1958.

4. Mayer, E. and Rappaport, I.: Indications and Contraindications for Tracheal Fenestration, *J.A.M.A.* 168:169, 1958.

### Intravenous Aortography and Angiography

Radiographic contrast visualization of the aorta and its larger branches is becoming increasingly important as the field of vascular surgery expands. In some respects, the development of techniques for radiographic diagnosis has not kept pace with surgical progress. The translumbar approach for abdominal aortography with direct needle puncture has proved satisfactory in many hands<sup>1</sup> but this technique has been abandoned at other centers<sup>2</sup> because of complications. In full evaluation of cerebral vascular disease by percutaneous needle injection, four separate direct needle punctures, two carotid and two vertebral, are frequently indicated. Vertebral artery puncture is difficult but often necessary. With direct puncture of these and the carotids, information about the vessel segments proximal to the needle puncture is not obtained. As with all percutaneous arterial puncture for contrast medium studies, the danger of arterial dissection and occlusion is always present.<sup>3,4</sup> This may well be an important factor in mortality and morbidity, and worse than reactions to the contrast medium. Unusual expertise and experience with certain methods may often improve the situation<sup>5</sup> but there is a great need for a simpler and safer technique which can be used in a variety of situations.

To this end, pending the great day of denser and safer contrast media, several centers, including our own, are using modifications of intravenous angiocardiology. The conventional method has long been used for thoracic aorta visualization<sup>6</sup> but greater concentration is usually required for adequate films of the abdominal aorta, and the thoracic and abdominal branches. Visualization of the latter structures is obtained simply by fast intravenous injection, larger amounts of medium, and precise timing. Multiple cassette changers are not necessary in abdominal aortography and probably not for visualization of the thoracic branches. Faster injection is achieved

by the use of two antecubital venous puncture sites and large bore syringes and needles, such as the Robb-Steinberg. Hand injection by two operators of equally divided doses is done simultaneously. Great care must be taken to avoid local extravasation of medium, because serious tissue slough at the puncture site may occur. Larger amounts of the usual media, up to 80 cc. or more, are used. Decholin circulation time is employed for a guide to exposure timing. A detailed report on the technique and results in intravenous abdominal aortography is scheduled for the November, 1959 issue of the American Journal of Roentgenology, Radium Therapy and Nuclear Medicine by Dr. Israel Steinberg of The New York Hospital. Time and experience, as always, will show the ultimate use of this approach, but the simplicity, apparent low morbidity, and wide applicability of the intravenous technique merit serious consideration. (Review by Dr. Joseph H. Allen, Jr. for the Middle Tennessee Heart Association.)

<sup>1</sup>McAfee, John G. *A Survey of Complications of Abdominal Aortography.* *Radiology* 68:825, 1957.

<sup>2</sup>Grossman, L. A. and Kirtley, J. A. *Paraplegia After Translumbar Aortography.* *J.A.M.A.* 166:1036, 1958.

<sup>3</sup>Liverud, Kjell. *Dissecting Aneurysm in Carotid Arteriography.* *J. Oslo City Hosp.* 8:209, 1958.

<sup>4</sup>Bobblitt, D. E., Figley, M. M. and Wolfman, E. F., Jr. *Roentgen Signs of Contrast Material Dissection of Aortic Wall in Direct Aortography.* *Am. J. Roentgenology, Radium Therapy, and Nuclear Med.* 81:26, 1959.

<sup>5</sup>Swann, G. F. *Vertebral Arteriography Using Sheldon Needle and Modifications of it.* *Brit. J. Radiol.* 31:23, 1958.

<sup>6</sup>Steinberg, I. and Finby, N. *The Importance of Angiography for Visualizing the Thoracic Aorta.* *A.M.A. Arch. Surg.* 74:29, 1957.

The symptom of hypoglycemia is an intriguing one, and must set off in the physician's mind thoughts concerning several possible causes and the means of establishing a diagnosis before any definitive treatment can be undertaken.

# HYPOGLYCEMIA\*

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Spontaneous hypoglycemia has recently been completely reviewed by Conn and Seltzer.<sup>1</sup> The purpose of this paper is to re-emphasize the great importance of making an etiologic diagnosis when the laboratory reports definite hypoglycemia. We must be aware that hypoglycemia, *per se*, represents merely a sign and not a specific disease entity (Table 1). The exact mechanism and significance of the low blood sugar is established only by a carefully elicited history, detailed physical examination and, finally, selected laboratory studies. We must be constantly aware of the multiple symptomatology which may be produced by hypoglycemia, so as not to overlook the diagnosis in our daily practice (Table 2, modified from Campbell<sup>5</sup>).

## Functional Hypoglycemia

Functional hypoglycemia or functional hyperinsulinism is one of the more common causes of hypoglycemia,<sup>1,2</sup> and was first described by Harris,<sup>3</sup> in 1924. Harrison's textbook defines reactive or functional hypoglycemia as a "common physiological disorder in which there is excessive insulin secretion in response to an elevation of the blood sugar following meals or periods of excitement".<sup>2</sup> Duncan<sup>4</sup> does not believe this symptom complex should be considered as secondary to an absolute increase in insulin production but more related to the nervous mechanism for regulation of the blood sugar independent of pancreatic factors. Conn<sup>1</sup> believes this clinical picture is produced by a hypersensitivity of normal islet cells to a rising arterial blood sugar which results in an excessive production of insulin with subsequent transient hypoglycemia. The increased sensitivity of the islet cells

Table 1

ETIOLOGIC CLASSIFICATION OF SPONTANEOUS HYPOGLYCEMIA*	
I. Organic—recognizable anatomic lesion	
1 A Hyperinsulinism	
1. Pancreatic islet cell adenoma	
a. Single	
b. Multiple	
c. Aberrant	
d. Associated with adenomas of other endocrine glands (parathyroid, anterior pituitary)	
e. Pancreatic islet cell "suspiciously malignant" adenoma (localized)	
2. Pancreatic islet cell carcinoma (with metastases)	
3. Generalized hypertrophy and hyperplasia of the islets of Langerhans.	
2 B Hepatic disease	
1. Ascending infectious cholangiolitis	
2. Toxic hepatitis	
3. Diffuse carcinomatosis	
4. Fatty degeneration or "fatty metamorphosis"	
5. Laennec's cirrhosis	
6. Viral hepatitis	
7. Chronic passive congestion in congestive heart failure	
8. Glycogenosis (von Gierke's disease)	
3 C Anterior pituitary hypofunction	
1. Destructive lesions (chromophobe tumors, craniopharyngiomas)	
2. Atrophy and degeneration (Simmonds' disease)	
3. Surgical hypophysectomy	
4. "Pituitary myxedema"	
a. Thyroid hypofunction secondary pituitary failure	
b. Pituitary failure secondary to myxedema	
5. Severe inanition	
6. Postoperative hypoglycemia	
4 D Adrenocortical hypofunction	
1. Idiopathic cortical atrophy	
2. Destructive infectious granuloma	
3. Destructive neoplasm	
4. Congenital adrenal hyperplasia	
5 E Fibromas and sarcomas	
F Central nervous system lesions (hypothalamus or brain stem; interference with nervous control of blood sugar)	
II. Functional—no recognized anatomic lesion, but explainable on basis of unusual somatic function	
A Hyperinsulinism (imbalance of the autonomic nervous system); "hypoglycemic fatigue; nervous hypoglycemia; functional hypoglycemia, reactive hypoglycemia"	
B Alimentary hyperinsulinism (rapid intestinal absorption)	

\*Read at the meeting of the Tennessee Diabetes Association, April 14, 1959, Memphis, Tenn.

\*Conn, J. W. and Seltzer, H. S.: Spontaneous Hypoglycemia, *Am. J. of Med.*, 19:461, 1955.

- 1. After gastroenterostomy
  - 2. After partial or total gastric resection
  - 3. Hyperinsulinism of infancy (Staub-Traugott phenomenon)
  - C "Idiopathic spontaneous hypoglycemia of infancy"
  - D Renal glycosuria (severe degrees of low renal threshold for glucose)
  - E Lactation
  - F Severe continuous muscular work
- III. Factitious (surreptitious insulin administration)

Table 2

MANIFESTATIONS OF HYPOGLYCEMIA*	
Vague uneasiness	Sweating
Sense of impending danger	Tachycardia
Mask like Face	Anxiety
Dilated pupils	Faintness
Diplopia	Excitement
Pallor	Emotional disturbances
Flushing	Vertigo
Tremulousness	Incoordination-Paresthesias
Hunger	Mania-Delirium-Aphasia
Nervousness	Hallucinations-Delusions
Tremor	Convulsions
Headache	Hemiplegia-Coma-Syncope

\*Campbell, W. R.: Hypoglycemia and Hyperinsulinism. *Canad. M. A. J.* 79:60, 1958.

to the normal rising blood sugar is thought to be mediated through the automatic nervous system with the vagal effects most prominent. In any case, it is agreed that the nervous system plays a basic role in the origin of functional hypoglycemia.

Patients exhibiting functional hyperinsulinism are invariably tense, excitable individuals who are often under chronic tension with associated functional gastrointestinal complaints (Table 3). The clinical picture

Table 3

- Functional Hypoglycemia  
Reactive Hypoglycemia  
Vagotonic Hypoglycemia  
Functional  
Hyperinsulinism
- 1—Common
  - 2—Never occurs fasting—FBS normal.
  - 3—Glucose tolerance test diagnostic.
  - 4—Blood sugar below 55 mg. per 100 cc. (Folin Wu)
  - 5—Treatment—high protein, low carbohydrate diet

that usually leads the physician to suspect the diagnosis are the recurrent bouts of weakness, faintness, "inward nervousness," sweating and tachycardia usually occurring two to three hours following a high carbohydrate meal. The real problem in diagnosing many of these cases is separating what is obviously an extreme anxiety re-

action from true hypoglycemic symptoms. It is important to remember that functional hyperinsulinism, *per se*, does not cause loss of consciousness<sup>1</sup> but may produce dizziness and a sense of faintness<sup>2</sup>. Organic hyperinsulinism, by contrast, is often associated with true loss of consciousness even to the point of convulsive seizures. Functional hyperinsulinism does not and can not occur in the fasting state since a rising arterial blood sugar is believed to be the initiating mechanism for the subsequent drop in blood sugar. This is most important and is the major criteria in helping distinguish functional hypoglycemia from organic hypoglycemia. Patients having functional hyperinsulinism spontaneously recover from their hypoglycemia even without ingested carbohydrate in contrast to the progression of symptoms seen in patients with organic hypoglycemia.

The glucose tolerance test is functional hyperinsulinism follows the characteristic pattern (Figure 1). Again note the fasting

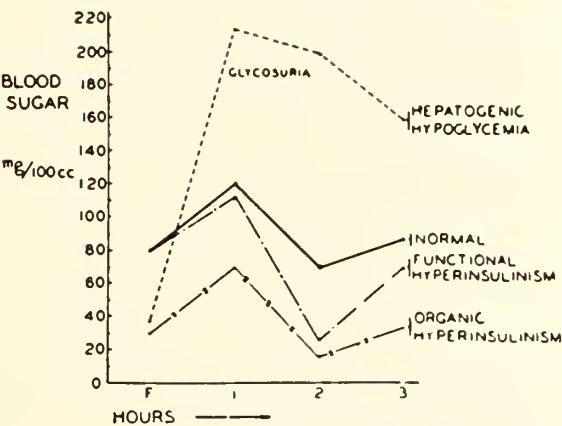


FIG. 1

blood sugar is normal followed by a normal rise but a rapid precipitous fall to hypoglycemic levels (usually 55 mg. per 100 cc. or lower—Folin Wu technic) at approximately two hours. The postprandial blood sugar in functional hyperinsulinism rarely is below 45 to 50 mg. per 100 cc., whereas in organic hyperinsulinism much lower fasting levels are demonstrated repeatedly. It is important to stress the necessity of preceding all glucose tolerance tests by a high carbohydrate diet consisting of approximately 3000 calories for three days prior to the test. This has been found neces-



sary to avoid the well known "starvation type curve" that can confuse the interpretation of the test. If only the standard glucose tolerance test is used, in other words the fasting, one, two, three, and four hour specimens, significant hypoglycemia may be overlooked between the hourly blood sampling. This is true since spontaneous rebound of the blood sugar may occur to normal levels quite rapidly. It is therefore wise to order 30 minute specimens after the two hour specimen is obtained to avoid missing the hypoglycemic episode. We have found it an additional help to instruct the laboratory technicians performing the vena punctures to record in an objective manner any signs or symptoms exhibited by the patient during the test and the exact time of their onset. In this way we are given further objective observations as to symptoms correlated with blood sugar levels at the completion of the test.

*Treatment* of functional hyperinsulinism is simple and effective. It is based on the above described mechanism of excessive postprandial insulin production following carbohydrate ingestion. The diet, therefore, consists of a high protein diet, approximately 110 to 130 gm. of protein per day and restriction of carbohydrate to 110 to 125 Gm. daily. The calories are then regulated in accordance to the patients requirements by lowering or raising the fat content. In certain type of patients it will be noted that a high protein diet of this degree will be difficult to obtain from the economic standpoint, and it is reassuring to the patient to know that after several months on this regimen a more liberal diet will often be tolerated again. In addition to these dietary recommendations anticholinergic drugs occasionally seem to aid further in reducing symptoms probably through a decrease in vagal tone.

We must be careful and very rigid in our criteria of diagnosing functional hyperinsulinism to prevent this syndrome from becoming a "waste-paper basket" for many functional symptoms without hypoglycemia as a factor. If the diagnosis has been made correctly by the above criteria, the dietary program will produce a prompt relief of symptoms related to the hypoglycemia.

### Alimentary Hypoglycemia

Alimentary hypoglycemia is another type of functional hypoglycemia, and is seen in patients following partial or total gastrectomy or gastroenterostomy. The mechanism here is thought to be a rapid absorption of carbohydrate from the small bowel with a sudden abnormal peak in the arterial blood sugar that stimulates an excessive response of insulin production by the normal islet cells of the pancreas. This type of hypoglycemia should be differentiated from the "dumping syndrome" that occurs 15 to 30 minutes following a large meal in a post-gastrectomy individual. The symptoms related to hypoglycemia invariably occur one and one-half to two hours following meals and not in the first thirty minutes postprandially.

*Treatment* for this type of hypoglycemia is basically the same as with functional hyperinsulinism except that six, small, high protein feedings are also probably indicated because of the small volume tolerated in the remaining gastric pouch.

### Organic Hypoglycemia

A complete listing and discussion will not be attempted of all the causes of organic hypoglycemia, but these have been listed in table 1 for reference. We will concern ourselves with the more common causes of organic hypoglycemia.

Organic hypoglycemia originating from pancreatic causes may be divided into three major groups: (1) hyperplasia, (2) functioning islet cell adenoma, and (3) functioning islet cell carcinoma. Hyperplasia of the islet cells is extremely rare in adults<sup>1,5</sup> and will not be discussed further. This is a diagnosis that can be made only by the pathologist. Benign pancreatic islet cell tumors, either single or multiple, account for the majority of organic hyperinsulinism. Ten to fifteen per cent of pancreatic islet cell tumors may be multiple.<sup>6</sup> Ten to twelve percent of islet cell tumors are malignant.<sup>1,4-7</sup> The mechanism of hypoglycemia in this case is simply an excessive production of insulin by the functioning islet tissue. Some authors report the greatest incidence of pancreatic tumors in the body and tail of the pancreas<sup>5,7</sup>, but in Conn's<sup>1</sup> extensive review

he states the location is equally distributed throughout the head, body and tail.

Organic hyperinsulinism secondary to a functioning islet cell tumor is a chronic disease and can vary greatly in its clinical course. Often the symptoms are noted over months or even years before clinical diagnosis is established, and corrective surgery is performed.<sup>1</sup> *The most important symptom is the inability to tolerate fasting.* Characteristically, the symptoms in this group occur in the early morning, usually before breakfast. They become progressively worse to the point of unconsciousness or until other severe central nervous system symptoms occur secondary to an interruption of carbohydrate metabolism in the higher centers. Epilepsy can be the initial symptom.<sup>8</sup> We had one patient with proven islet cell adenoma that had to set her alarm clock at 4 a.m. so she might eat to prevent an unconscious spell or convulsion by 5:30 or 6 a.m. This is in contradistinction to functional hypoglycemia which does not occur in the fasting state. This is not to say that patients with organic hyperinsulinism do not have reactions of hypoglycemia during the day, since often they find they must eat at two to three hour intervals to prevent serious hypoglycemia. The earliest symptoms of hypoglycemia often are those related to a response of the autonomic nervous system to the dropping blood sugar and are characterized by sweating, tachycardia, dizziness and weakness. If ingestion of carbohydrate does not interrupt this chain of events, the symptoms invariably progress to profound confusion, thick speech, blurring of vision, convulsions and death. The patients usually have found by experience that carbohydrate in any form will prevent more serious symptoms. As a result of this frequent eating of high carbohydrate foods many patients are obese when first seen for diagnostic studies.<sup>5</sup> These patients are occasionally mistakenly considered as presenting psychiatric problems.<sup>1, 5</sup>

Epilepsy has been confused with an islet cell tumor.<sup>8</sup> Irreversible changes in the central nervous system secondary to recurrent bouts of severe hypoglycemia are well documented,<sup>9</sup> and this fact adds urgency to the problem of early diagnosis and institution of corrective surgical therapy.

The diagnosis of organic hyperinsulinism cannot be considered until Whipples Triad is found to be present.<sup>10</sup> This should include, (1) a *fasting blood sugar* of less than 55 mg. per 100 cc., (Folin Wu method) and usually lower, (2) symptoms of hypoglycemia produced on fasting, and (3) abrupt relief of all symptoms with glucose intravenously. The fasting blood sugar level is the diagnostic laboratory test in this disease, but the glucose tolerance test is often helpful in excluding other disease which may give hypoglycemia.

It is important to stress that a 3 day preparation with a high carbohydrate diet is indicated before the glucose tolerance test is done when organic hyperinsulinism is suspected. This is important, since in certain cases with proven islet cell adenomas the glucose tolerance test has given a high plateau curve with a low fasting blood sugar. This could easily be confused with hepatic hypoglycemia. This atypical glucose tolerance curve is thought to be secondary to depression of normal insulin production of the islet cells by the high insulin production of the adenomas and can be shown to return to a characteristic curve if the high carbohydrate diet given for 4 to 5 days. Apparently the normal function of the islet cells is then restored, and the expected glucose tolerance curve of organic hyperinsulinism is produced.<sup>1</sup> In cases suspected of organic hyperinsulinism and in which there is any doubt regarding the diagnosis, the following dietary program should be carried out in the hospital prior to making a definite diagnosis. The patient is placed on a 50 Gm. carbohydrate, 50 Gm. protein, 1200 calorie diet as a provocative test for 3 days. The hospitalized patient is watched closely for evidence of severe hypoglycemia. A fasting blood sugar is obtained daily. If no hypoglycemia is produced after 3 days, ordinarily organic hyperinsulinism can be excluded. However, the patient should be fasted on the fourth day and exercised on the fifth day to absolutely exclude organic hyperinsulinism. If a functioning islet cell tumor is present, symptoms will almost invariably be produced by diet alone and rarely is further study necessary.<sup>1</sup>



The above rigid diagnostic criteria for organic hyperinsulinism must be adhered to by the diagnostician. Once operation is recommended we must be in a position to recommend subtotal pancreatectomy, if no gross tumor is found at operation and therefore must be certain as to our preoperative medical evaluation and diagnosis. Most authorities stress the importance of complete mobilization of the pancreas, in particular the head of the pancreas, to be certain a hidden adenoma is not present prior to doing a subtotal resection.<sup>1,6,7</sup> Mortality from removal of a simple adenoma has been reported as high as 9% and a mortality of 14% when subtotal resection was necessary in a large series of 398 tumors by Howard et al.<sup>6</sup> The tumor or tumors are usually relatively small and rarely exceeds 2 cm. in size.<sup>7</sup> Malignant adenomas occur in approximately 10% of the cases, and when metastases occur they are primarily to the regional nodes and liver. Fifty percent of the metastases are functional, and hypoglycemia is often severe in this situation and difficult to control by any present means of therapy. Alloxan has not been of value in this situation but high doses of steroids may be of help in controlling terminal hypoglycemia in this clinical picture.<sup>1</sup>

Hepatic hypoglycemia should always be excluded before considering the patient to be a candidate for exploration for an islet cell tumor. Usually, if hypoglycemia is present and is the result of severe liver disease this will be obvious by grossly abnormal liver function studies.<sup>1, 4, 5</sup> It has been shown that 80% of the liver must be removed in experimental animals to produce significant hypoglycemia.<sup>20</sup> The glucose tolerance test is of help and usually will give a characteristic low fasting blood sugar with a high plateau curve and a slow but gradual return to hypoglycemic levels (Figure 1). Primary tumors of the liver can be associated with hypoglycemia.<sup>11</sup> Hypoglycemia associated with severe prolonged chronic congestive heart failure has been reported and it is thought that this probably is secondary to hepatic damage but extrahepatic contributory factors, such as starvation, anorexia, and other circulatory disturbances probably play a role.<sup>12</sup> It is interesting to note that many cases of

hepatic coma expire without recognizable hypoglycemia in their terminal illness.

Adrenal and anterior pituitary insufficiency as a cause of hypoglycemia has been well known for a number of years and usually does not offer any diagnostic problem once hypoglycemia becomes apparent. A careful history and physical examination will usually suggest endocrine disease if sufficient to produce hypoglycemia. By the time hypoglycemia occurs secondary to anterior pituitary insufficiency usually other stigmas of significant gonadal, thyroidal, or adrenal insufficiency is clinically apparent. The management here is that of the primary disease process plus a high carbohydrate diet.

In the past few years there has been an interesting group of cases of hypoglycemia associated with large fibrogenic type of primarily intra-abdominal tumors.<sup>13-16</sup> The mechanism of the severe hypoglycemia associated with these tumors is unknown but has been suggested by Scholtz, et al,<sup>13</sup> that it may be due to, "(1) tumor products that increase insulin secretion by the pancreas, (2) increased utilization of carbohydrate by the tumor, and (3) reduction in insulinase activity." In all the articles reviewed the large size of the tumor has been repeatedly stressed as playing an important role. In one case of a nonpancreatic fibrosarcoma associated with severe hypoglycemia, August and Hiatt<sup>14</sup> were able to demonstrate a definite increase in insulin activity from the tumor by insulin assay. Further investigative study will be needed before definite statement can be made as to the mechanism in these cases. It is probable that there is more than one factor responsible for the hypoglycemia related to these large tumors.

Severe hypoglycemia resembling functional islet cell tumor but occurring in infants and children has been investigated by McQuarrie et al.<sup>17-19</sup> McQuarrie<sup>18</sup> originally thought that the hypoglycemia in this group was related to a deficiency of the alpha factor or glucagon which is liberated by the alpha cells of the pancreas. This deficiency was postulated as permitting excessive insulin activity by a decrease in the insulin antagonist, glucagon. This was not verified by pancreatic biopsies and the



etiology in this group is still not known.<sup>1</sup> However, it has been shown that children in this age group, from infancy to five years of age, should not have subtotal pancreatectomy performed but be managed with ACTH.<sup>1, 16, 18, 19</sup> The symptoms in this latter group of patients are indistinguishable from a functioning islet cell adenoma. Usually with passage of time the idiopathic hypoglycemia subsides. The mechanism is still obscure. It should be emphasized that steroid therapy should never be used as a substitute for surgical therapy in proven organic hyperinsulinism with the exception of that seen in infants.

### Summary

Hypoglycemia is a sign and not a disease entity. An attempt has been made to re-emphasize the important signs and symptoms so as to facilitate the correct etiologic diagnosis and thereby expedite proper therapy, whether it be medical or surgical. A carefully taken history would appear to be the most important single factor in arriving at a correct diagnosis.

### References

1. Conn, Jerome W., and Seltzer, Holbrooke S.: Spontaneous Hypoglycemia, *Am. J. Med.* 19:460, 1955.
2. Harrison, T. R.: *Principles of Internal Medicine*, New York, Blakiston, c 1958.
3. Harris, S.: Hyperinsulinism and Dysinsulinism, *J.A.M.A.* 83:729, 1924.
4. Duncan, G. G.: *Diseases of Metabolism*, Philadelphia and London, Saunders, p 746, c 1952.
5. Campbell, W. R.: Hypoglycemia and Hyperinsulinism, *Canad. M. A. J.* 79:760, 1958.
6. Howard, J. M.: Hyper-insulinism and Islet Cell Tumors of the Pancreas with 398 Recorded Tumors, *Surg. Gyn. & Obst.* 90:417, 1950.
7. Williams, R. D., and Ellison, E. H.: Diagnosis and Surgical Treatment of Hyper-insulinism, *A.M.A. Arch. Surg.* 75:584, 1957.
8. Runge, T. M., et al.: Insulinoma Simulating Epilepsy, *Neurology* 7:870, 1957.
9. Fahlgren, H. et al.: Prolonged Unconsciousness in Connection With an Attack of Hypoglycemia; Case with Fatal Outcome and Adrenal Cerebral Changes, *Acta medica scandinav.* 158:97, 1957.
10. Whipple, A. O., Frantz, U. K.: Adenoma of Islet Cells with Hyper-insulinism, A Review, *Ann. Surg.* 101:1299, 1935.
11. Klein, H. and Klein, S. P.: Spontaneous Hypoglycemia Associated With Massive Hepatoma, *A.M.A. Arch. Int. Med.* 103:273, 1959.
12. Tumulty, P. A., and Mellinkoff, S. M.: Hypoglycemia in Congestive Heart Failure (ed). *Diabetes* 7:147, 1958.
13. Sholz, D. A., et al: Spontaneous Hypoglycemia Associated With Fibrogenic Tumor: Report of Two Cases, *Ann. Int. Med.* 46:796, 1957.
14. August, J. T., and Hiatt, H. H.: Severe Hypoglycemia Secondary to a Non-pancreatic Fibrosarcoma With Insulin Activity, *New England J. Med.* 258:17, 1958.
15. Nesbitt, K. A., et al: Malignant Mesothelioma Associated With Hypoglycemia; Report of a Case, *Am. J. Clin. Path.* 30:148, 1958.
16. Hines, R. E.: Hypoglycemia Apparently Due to Retroperitoneal Sarcoma, *M. Bull. Veterans Administration*, 20:102, 1943.
17. McQuarrie, I.: Idiopathic Spontaneously Occurring Hypoglycemia in Infants, *A.M.A. Am. J. Dis. Child.* 87:399, 1954.
18. McQuarrie, I., et al: Deficiency of Alpha Cells of Pancreas as Possible Etiological Factor in Familial Hypoglycemia, *Fed. Proc.* 9:337, 1950.
19. McQuarrie, I., et al: The Metabolic and Clinical Effects of Pituitary Adreno-corticotrophic Hormone (ACTH) in Spontaneous Hypoglycemia, *Bull. Univ. Minnesota Hosp.* 21:35, 1949.

The complexities that accompany scientific advances often require a combination of the skills of various specially trained persons. This is well demonstrated in the success which can be attained in rehabilitating the amputee.

## The Group Approach in the Evaluation of the Amputee and Prescription of Prostheses\*

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The concern for prosthetic replacement of amputated extremities has had a great impetus since World War II. The combined efforts of the Armed Forces and the Prosthetic Research Board of the National Research Council have broadened the scope of understanding and application of prosthetic prescription, fitting and training.

Following World War II, the Veterans Administration established amputation clinics in which physicians and prosthetists maintained the high standards of care which had been available to the amputee at Armed Forces Rehabilitation Centers. It soon became apparent that these services were required by a large number of amputees outside the realm of the Veterans Administration program. The excellent results obtained by this "team approach" was in contrast to the results obtained when the amputee, following operation, was referred to the prosthetist for prescription and training, or when the prosthetist took it upon himself to fit and train an amputee without the physician's control. This statement in no way is meant to criticize the prosthetist or the physician who previously has had no other means at his disposal for rehabilitation of the amputee. The prosthetist, as a matter of fact, is the first one to express appreciation about the value of sharing the responsibilities with the other members of an amputee clinic team.

Realizing that there was a need for better management of civilian amputees, two agencies have been instrumental in establishing amputation evaluation centers throughout the country. The National Research Council has contributed not only prosthetic ad-

vances, but it has also made this information available to physicians, prosthetists, therapists, and rehabilitation counselors through amputation courses given at New York University and University of California at Los Angeles. The other agency, the State Office of Vocational Rehabilitation, has furnished the impetus to establish clinics within the state and a means whereby amputees are referred to the clinics for evaluation.

In April, 1958, through the stimulation and assistance of the State Office of Vocational Rehabilitation, an Amputee clinic was established as an Out-Patient service of Vanderbilt University Hospital. This clinic is staffed by physicians, physical therapists, prosthetists, and Vocational Rehabilitation counselors who have attended courses of instruction at the University of California at Los Angeles or New York University. The majority of amputees seen in our Amputation Evaluation clinic are referred by Vocational Rehabilitation counselors. However, this service is available to private physicians referring patients with the same fee schedule as established with the state. The private patients are returned to their physicians after a final evaluation indicates that the prosthesis is satisfactory and the patient has obtained a high degree of functional utilization.

The Amputation Evaluation Clinic is so organized that the patient's first visit includes a detailed general physical evaluation with particular stress being placed on the cardiorespiratory systems and the status of the remaining extremity. Also, the characteristics of the amputation regarding its form, range of motion, and any scars or tenderness are carefully noted. Since the

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establishment of this clinic at Vanderbilt University Hospital, approximately one year ago, we have seen 35 amputees who have never had a prosthesis and 17 for alterations of prosthetic devices. (Table 1.)

Table 1

AMPUTEE CLINIC STATISTICS—  
1 MAY 1958 TO 1 APRIL 1959

	<i>New</i>	<i>Old</i>
Number of patients	35	17
Number fitted	28	8
Number disqualified	7	—
Review and modification	—	9
Amputee types		
Symes	1	1
Below knee	9	6
Knee disarticulation	1	1
Above knee	15	10
Hip disarticulation	3	—
Upper extremity	8	1
	—*	—**
Total amputations	37	18
*includes two double amputee		
**includes one double amputee		

Of the 35 new patients, 7 were considered to be unsatisfactory candidates for a prosthesis. This is a low overall percentage of disqualification, since most of these are partially screened before coming to the clinic and most of our patients are in a younger age group. Those amputees considered to be eligible physically for a prosthesis are then presented to the clinic group consisting of the physician, prosthetist, therapist, and counselor. The case is discussed and a detailed prescription is written for the prosthesis that best fits the individual's need for maximal function.

A functional goal is established for each individual patient, depending on his youth, agility, coordination, and motivation. For example, the goal set for a young "below-knee" amputee would be one of complete return to almost normal activities, whereas, the goal for the elderly amputee is modified according to the above mentioned criteria, so that a cane or crutch may be allowed to assist in ambulation.

After the prosthesis has been completed in the rough, the patient is seen in the Physical Therapy Department and given one or two periods of training, but is not allowed to take the limb out of the department. He then returns to the next amputee clinic at which time he is again seen by the group for an initial check-out. If the prosthesis fulfills the prescription as ordered and is satisfactory for comfort, function, and appearance, it is returned to the limbmaker for completion. This check-out is a detailed procedure which includes a list of standards set forth by the University of California at Los Angeles and New York University Prosthetic Schools.

After the prosthesis has been completed following initial check-out, the patient returns to physical therapy for additional periods of training. He is then allowed to take his prosthetic replacement home to gain functional skill.

The amputee then returns to the clinic for a final evaluation. If he reaches the goals established for his individual case, and the prosthesis meets the standards of the group, he is returned to the referring physician or Rehabilitation agency. If this final check-out is unsatisfactory, additional training or modification of the prosthesis is carried out to bring the patient up to the required proficiency.

At present, an evaluation of the results of our work is underway. From a preliminary survey, we have the impression that individuals discharged from our clinic have continued to make good use of their prostheses enabling them to be better candidates for job placement, the final goal of this group. In later reports, we hope to present this information and a more detailed account of the principles of prosthetic replacement in both upper and lower extremity amputations.



## STAFF CONFERENCE

### St. Thomas Hospital\*

#### Neurologic Complications of Pregnancy

DR. DEXTER L. WOOD, JR.: This 38 year old lady was admitted to the obstetrical service on June 9, 1959 with the chief complaint of headaches. She was at term with her fourth pregnancy. Her first pregnancy was delivered in 1948 without difficulty and was of 9 months' gestation. Another pregnancy culminated in 1950 with a 6½ pound full term infant. She had a spontaneous abortion in 1957 after 3 months gestation. The LMP was September 25, 1958 which made her expected date of confinement July 3, 1959.

One month prior to admission she noted pedal edema and one episode of facial edema. A low salt diet and chlorothiazide were prescribed by her physician. Four days prior to admission she developed severe headache followed on the next day by nausea and vomiting. She vomited several times on the day of admission. There had been no abdominal pain, diarrhea, or visual disturbance.

On admission her blood pressure was 160/90, pulse rate 76, respirations 18 and temperature 99°. She was in no distress. Examination of the head, eyes, ears, nose and throat was negative. The lungs were clear. Her abdomen was distended with a term gravid uterus and no areas of tenderness or other masses were noted. Minimal pedal edema was present. On June 10, 1959, the day after admission, she went into labor and continued to vomit. The vomitus contained a few flecks of blood. Her urinary output was good. Her sensorium was cloudy. She was delivered after receiving 5 c.c. of Seconal intravenously and 180 mg. of Nembutal by mouth. She also received 25 mg. of Phenergan six times during the first two hospital days as well as 150 mg. of Demerol. The delivery was not remarkable except for increased postpartum bleeding. She was placed on a pitocin drip three and one-half hours after delivery. At that time her blood pressure was 120/78, pulse rate was 90 and respirations were normal. Laboratory studies showed a PCV of 41% and a hemoglobin of 12.2 Gm.%.

The following day she remained in coma and did not respond. The blood pressure was still within normal limits. She was slightly edematous. A lumbar puncture was done revealing an opening pressure of 120 mm. of water, 41 mg.% of protein, 52 red cells per cubic milliliter, some of which were crenated. Decreased deep tendon reflexes were noted. Her respirations became labored. Dr. Gray E. B. Stahlman, neurosurgeon, saw her in consultation on this day and he thought

the patient had had a brain stem thrombosis. Electrolyte studies of the serum revealed potassium of 3.2 meq/L, sodium of 90 meq/L, chlorides of 61 meq/L and CO<sub>2</sub> of 10 meq/L. The NPN was 29 mg.%. Fluid intake for that day was 3,700 c.c. with a urinary output of 1,500 c.c. Treatment was then started for the electrolyte imbalance and this included intravenous solution of 3% sodium chloride, 1/6 molar lactate and potassium chloride. The following day her condition remained about the same. Her output went up to 4,400 c.c. On this day her serum potassium was 2.7 meq/L, serum sodium was 101 meq/L, serum chlorides 78 meq/L, serum CO<sub>2</sub> 23 meq/L and serum calcium 6.2 mg.%. Penicillin and chloromycetin were started.

On June 14, 1959, which was the 4th postpartum day, she was still in coma but would respond to painful stimuli. Her pulse rate was 100, blood pressure 110/80 and temperature was 100.6°. There was muscle twitching. Her neck was not stiff. The pupils were constricted but equal bilaterally. She was hyperpneic. The heart was not enlarged. The liver was palpable just below the costal margin. There was no edema. The deep reflexes were hyperactive and the plantar reflexes were bilaterally extensor. The diagnoses at that time were a severe electrolyte imbalance with hypokalemia, hyponatremia and hypocalcemia, barbiturate intoxication, toxemia of pregnancy and coma. The following day, the 5th postpartum day, she was put on cortisone 100 mg. every eight hours. Penicillin and chloromycetin were discontinued and tetracycline was started. Her serum electrolytes improved and by the next day were almost with normal limits. Tracheostomy was necessary to maintain the air way and to clear the secretions. Convulsions developed. Intravenous injections of amytal were required. She then developed pneumonia in both lungs and with this her temperature reached 104°. She passed a large vaginal clot which showed no placental tissue on pathologic examination. During her hospital course she received five whole blood transfusions.

She continued to have albumin, white blood cells, red blood cells and coarsely granular casts in the urine. The NPN remained normal throughout the hospital stay. The liver function series was normal except for a low total serum protein (5.6 Gm.% with albumin 2.3 Gm.% and globulin of 2.3 Gm.%). Her course progressively deteriorated in spite of treatment. This morning, which is her 14th postpartum day, she is in shock requiring Levophed infusion. Respirations are sporadic and cyanosis is present. Both lungs are full of rales. The temperature is 105°. Needless to say she is moribund.

I wonder if Dr. Hillard has anything to add since he saw this patient originally.

DR. IRVING HILLARD: I saw this patient throughout most of her pregnancy. Two weeks before her hospital admission

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she had edema, albuminuria and a blood pressure of 160/110 in my office. She was placed on chlorothiazide (Diuril) and phenobarbital. After treatment her blood pressure dropped to 140/90. The day prior to admission it had returned to its hypertensive level. Incidentally, she had no difficulties with the mechanisms of labor and delivery.

DR. WOOD: Thank you Dr. Hillard. Dr. Cowden was the medical consultant on this case.

DR. FRED COWDEN: When I was called to see this patient she had marked electrolyte imbalance. It is difficult to say how much of her electrolyte imbalance was produced by vomiting and how much was due to chlorothiazide (Diuril).

DR. WOOD: What was the dose of Diuril and the dose of phenobarbital given before hospital admission?

DR. HILLARD: Diuril was given in dosage of 0.5 Gm. b.i.d. and she received this over a period of less than a week. Her phenobarbital was given in dosage of 30 mg. q.i.d.

DR. COWDEN: She was given 100 mg. of cortisone every 8 hours. We really did not think that she had acute adrenal insufficiency even though her sodium and chlorides were quite low. Her electrolyte imbalance was corrected easily. We feel that if she had acute adrenal insufficiency it would have been more difficult to correct her serum electrolytes. In retrospect, possibly we should have given her more hypertonic saline earlier and also administered calcium and magnesium a little sooner.

DR. WOOD: This patient's course has been of great interest and concern to all of us, and I have invited Dr. Sprofskin here to discuss her problem in the light of some possible neurologic complications of pregnancy.

DR. BERTRAM E. SPROFSKIN: Certainly, the combination of pre-eclampsia, electrolyte imbalance, post partum hemorrhage and possible barbiturate toxicity constitutes a formidable array of neurotoxic factors. Any one of these conditions could lead to coma and death, and I see no way of dissociating their influences upon the unfortunate clinical course of this patient.

In retrospect, the neurologic course is

consistent with diffuse cerebral damage. Although several of the features of the pre-eclamptic state were present here prior to delivery, the notable absence of visual changes, convulsions, severe proteinuria and oliguria would lead me to doubt that eclampsia was the major problem here. Neither the focal neurologic abnormalities nor the cerebro-spinal fluid findings of cerebral hemorrhage are present here. Hypertensive vascular disease was not a feature to be considered seriously. At times, it may be difficult to distinguish between hypertensive encephalopathy and eclampsia. In cases of hypertensive encephalopathy complicating pregnancy, the blood pressure is usually above 200 mm. of mercury and the patient often presents a history of previous hypertension.

Post partum thrombosis of the cortical veins and dural sinuses may occur during the first few weeks of the puerperium and may result in convulsions and death. More often there are focal seizures and hemiplegia. As in this instance, the cerebro-spinal fluid may be normal. Generally the patient survives and only rare instances have been reported to begin prior to delivery. This patient's headache and vomiting preceded delivery by about four or five days and her subsequent course would not seem to me to be characteristic of this disorder.

While on the subject of cerebrovascular complications one must mention air embolism which may occur during delivery or the puerperium. Sudden death following knee-chest exercises has been attributed to air embolism.<sup>1</sup> Various disorders of metabolism may complicate pregnancy and Dr. Cowden has called attention to the electrolyte imbalance here and the possibility of acute adrenal insufficiency. One might also mention such metabolic complications as diabetes, diffuse hepatic necrosis and hypocalcemia although none of these conditions is an issue in this case.

A normal spinal fluid is helpful in ruling out various infections of the central nervous system such as meningitis, brain abscess or subdural empyema.

The possibility of cerebral damage associated with the anesthesia cannot be easily excluded. In the past, nitrous oxide

has been frequently incriminated as the offending agent. Other anesthetic agents, including the barbiturates,<sup>2</sup> are also reported to have produced cerebral damage. In passing, it might be mentioned that spinal or caudal anesthesia may be followed by adhesive arachnoiditis with permanent damage to the spinal cord and nerve roots.

Having invoked all of these spectres in the discussion of some of the complications of pregnancy, we must admit that no one of these clinical rarities is classically illustrated by this unfortunate woman's illness. Perhaps the pre-eclamptic state leading to vomiting and the resulting electrolyte imbalance caused this patient's brain to be unusually susceptible to the anesthetic agent and lead to apparently irreversible cerebral damage.

DR. LAURENCE GROSSMAN: Was the possibility of amniotic fluid embolism considered?

DR. SPROFKIN: Since amniotic fluid contains some particles of solid matter, amniotic fluid embolism is said to represent a rare cause of maternal death during or immediately after labor. Death in these cases follows the sudden onset of dyspnea, cyanosis, convulsions and coma and occurs in minutes, or at the most hours, after delivery. The neurologic symptoms are thought to be the result of anoxemia due to massive pulmonary embolism. The course here is not entirely consistent with the entity although we are in no position to exclude it categorically.

DR. ADDISON SCOVILLE: Dr. Sproffkin, is there a possibility that Sheehan's syndrome could produce such a picture?

DR. SPROFKIN: We know that this patient did not exhibit peripheral circulatory collapse with a fall in blood pressure following delivery. In the absence of shock I don't know whether there has been sufficient post partum hemorrhage here to result in the ischemic necrosis of the pituitary described by Sheehan. Certainly, there are many stressful agents operating in this case and one wonders whether this patient's pituitary circulation was adequate under such adverse circumstances.

DR. GROSSMAN: The chest X-ray suggests the diagnosis of multiple pulmonary infarctions from emboli.

DR. WOOD: I regret that time does not permit further discussion of this interesting case. To summarize, several different etiological factors probably are responsible for her bizarre clinical picture.

#### (POST-CONFERENCE NOTE)

DR. WOOD: This lady expired five hours after the conference. She remained in shock with unobtainable blood pressure. Unfortunately, permission for an autopsy was not granted.

#### References

1. Redfield, R. L. and Bodine, H. R.: Air Embolism Following the Knee-Chest Position, *J.A.M.A.* 113:671, 1939.
2. King, A. B.: Neurologic Conditions Occurring as Complications of Pregnancy, *Arch. Neurol. and Psy.* 63:471, 1950.



CLINICOPATHOLOGIC  
CONFERENCE

Vanderbilt University Hospital\*

Sarcoidosis

This 37 year old colored maid was admitted into the Vanderbilt University Hospital for the first time on September 3, 1954 with the chief complaint of "asthma."

She had apparently been in good health until 8 months before admission, when she began to note moderate dyspnea on exertion. These episodes were considered "asthmatic" by the patient and were relieved by "white pills" prescribed by her physician. There were also occasional vague fleeting pains in her anterior chest along with an inconstant cough productive of minimal yellowish sputum.

She did fairly well, however, until 2 months before admission, when her exertional dyspnea increased and a 3 to 5 pillow orthopnea with paroxysmal nocturnal dyspnea became evident. Three weeks prior to admission her ankles began to swell. She denied chills, fever, or night sweats.

During the 6 months before admission she had noted increasing nervousness, weight loss of 20-30 pounds (with good appetite), and mild nocturia. She denied any history of rheumatic fever, hypertension, or previous heart disease. She had had a bout of "pneumonia" 2 years ago, but denied any other intervening pulmonary symptoms. There was no known exposure to pine pollen, beryllium, silica or other dust, nor was there any record of exposure or family history of tuberculosis.

Beyond a hysterectomy for fibroids 2 years before admission, her past history and review of systems were negative. She did not smoke and denied frequent respiratory tract infections.

**Physical Examination.** Temperature was 98.8 ; P. 100 (regular); B. P. 124/82; R. 30. She was an anxious, jittery woman, perspiring rather freely, sitting up, with obvious tachynea and dyspnea. The skin was warm and dry without unusual pigmentation or any lesions. There was

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	NPN	CO <sub>2</sub>	C1	Na	K	TSP & A/G	Ca.	PO <sub>4</sub>	Alk Phos.
	mg.	mEq/1	mEq/1	mEq/1	mEq/1	Gm.	mg.	mg.	units
Sept. 4	38	18	102			6.7, 3.1/3.6	9.4	3.5	3.7
8		26.3	93	128	4.8				
Oct. 18	29	25	97	141	4.4				
Sept. 4	Bilirubin 0.5 mg.				Chol. 120 mg.				
8	P.B.I. 2.9 mcgm								
20	Prothrombin time 83%				BSP 16%				
14	Cephalin flocculation 3+				Chol. 150 mg.-Free 53 mg. Ester 97 mg. Thymol 4 units				
28	Cephalin flocculation neg.								
Oct. 10	PSP 45%, 20% in first 30 min.				Thymol 2.5 "				
14	Stool trace occult blood, no ova or parasites seen.								
Venous Pressure:		Sept. 4		Sept. 23		Sept. 28			
	Leg			160 m.		160 m.			
	Arm	175 m.		250 m.		110 m.			

a shotty cervical and epitrochlear adenopathy. Head, eyes, ears, nose and throat were not remarkable; the fundi were normal. The thyroid was enlarged one and a half times, the left lobe more than the right (not further described). The trachea was in midline. The breasts were normal. The chest was symmetrical with poor excursion. Diaphragms moved only 1 cm. bilaterally. The lungs showed dullness to percussion at the apices with decreased transmission of spoken words over the mid-lung fields and inferiorly bilaterally. Crackling rales were present over both apices, the left mid-lung field posteriorly, and the right base anteriorly. No fine rales were heard. Scattered rhonchi were heard over chest anteriorly. Breath sounds were bronchovesicular. The heart was enlarged 2 cm. to the right of the mid-sternal line and extended to the anterior axillary line in the 5th interspace. P-2 was loud, A-2 soft. A pre-systolic gallop was present at the apex; no murmurs were heard. There was normal sinus rhythm. The liver was down 2 finger-breadths and nontender. Spleen and kidneys were not felt. There was a lower midline scar. Pelvic examination showed the cervical os stenosed with a few punctate areas of erosion. The fundus and adnexa were not palpable. Rectal examination was normal. The peripheral pulses were good; there was 2+ pedal edema. Neurological examination was in order.

**Laboratory data.** Multiple urinalyses were recorded as amber color, Sp. Gr. of 1.005 — 1.015; pH. 5 — 7; albumin 0 — 1+; sugar 0; microscopic 1-10 WBC per high power field, no RBC or casts. Sulkowitch test on Oct. 15 was 3+. Multiple hemograms: WBC 9,200 — 12,700, with a differential of Segs. 77, Juv. 3, Eos. 0, Baso. 0, Lym. 15, Mono 5. Hgb. 14.4 — 15.8 Gm. PCV 46 — 47mm. Sedimentation rate 30 corrected.

**Cultures:** Bronchial washings, gastric washing, sputum (12 times), bone marrow—all negative for fungi, acid-fast bacilli. Blood cultures all negative. Sputum cultures revealed *Staph. albus* (+), *Strep viridans*, and pneumococci on several occasions. Last sputum (Nov. 3) grew out monilia and paracolon. O.T.(serial dilutions) and Histoplasmin skin tests were negative. Histoplasma complement fixation (Sept. 9 and 21) negative.

**EKG:** Right ventricular hypertrophy and prominent P waves consistent with cor pulmonale.

**Chest film:** Sept. 1. Heart not grossly abnormal in size or shape, but the extent of silhouette difficult to determine. A diffuse process involves all of both lung fields, consisting of a marked coarse fibrotic appearing, chaotically arranged infiltration with irregularly interspersed areas of increased density between it. Pleural thickening noted around the periphery of the lung field in the apices and bases. Serial films on Sept. 14, 24, 28 and Oct. 11 showed no significant change. Biopsies of bone marrow, bronchus and liver revealed no granulomas, tumor cells or other abnormalities. No nodes were found on attempted node biopsy in anterior cervical triangle.

**Spirogram:** Sept. 4. Minute ventilation, 14.6 L.; respiratory rate 35; vital capacity 870 cc. (normal 3000); 3 second vital capacity, 870 cc. Maximum breathing capacity 27.6 L/min. (normal 75). Impression—marked reduction in all lung compartments with no evidence of bronchial obstruction. Serial spiograms showed slight improvement in vital capacity and maximum breathing capacity, but some evidence of air trapping and obstruction appeared.

**Course.** She was initially placed on a low salt diet, digitalized, given oxygen, aminophylline, and very mild sedation. Rectal temperatures revealed the presence of a daily intermittent fever ranging from 100-102° with proportionate tachycardia. After 16 days of evaluation failed to establish a diagnosis of tuberculosis or other infectious process, a clinical diagnosis of possible sarcoidosis was made, and she was begun on ACTH drips (25u) for a period of 15 days with marked improvement. Her temperature returned to normal, her spirogram improved, arterial O<sub>2</sub> saturation rose from 75% to 90%, and she required oxygen only on occasion. Her remission was brief, however, and within a week she once again became dyspneic with rales, fever, and tachypnea. Within a few days, I.V. ACTH drips once again induced a remarkable remission, which persisted for the 15 days during which ACTH was given. She was continued on small doses of cortisone and did well for about 3 or 4 days when her symptoms gradually recurred. On the 68th hospital day she complained of labored respiration and substernal tightness. Findings were unchanged beyond the return of a gallop rhythm at a rate of 130. She was given 50 mg. of Demerol and went to sleep; however 3 hours later she was found dead. Autopsy was obtained.

At no time during her hospital course was she given any antibiotics.

**DR. R. H. KAMPMEIER:** The case we have for consideration then is that of a 37 year old colored woman, complaining of "asthma" and having been ill for a period of eight months. The chief complaint has been related in the main to the pulmonary system, as indicated by her complaint of

"asthma" and apparently was characterized by breathlessness upon moderate exertion, as well as cough which was productive of sputum. This situation apparently lasted for some six months, that is until about two months before admission to the hospital, when she began to notice increasing breathlessness upon exertion as well as orthopnea, and actually paroxysmal nocturnal dyspnea. In addition, she apparently began to notice edema of the ankles. Six months before admission, the patient became aware of increased nervousness and had a weight loss of some 20 to 30 pounds in spite of a good appetite.

The past history offered little of assistance, although it might be noted that she had pneumonia two years before admission.

The main points upon the examination were a tachycardia, anxiety, breathlessness and she was noted to be perspiring. She had a goiter with the left lobe being greater than the right. Respiratory movements were limited. There was impairment upon percussion of the chest, and rales were heard over all areas. The breath sounds were bronchovesicular to bronchial. The heart was enlarged with accentuation of the pulmonic second sound and other than a gallop rhythm, no arrhythmias or murmurs were heard. The liver edge was down two finger-breadths though not tender, so it is difficult to recognize the significance of this finding. A 2+ pitting edema was present.

From a laboratory standpoint it should be noted that her hemoglobin ranged from 14 to 16 Gms. with a PCV of 46 and 47. Otherwise there was little, except that the calcium was on the low side, as were the P.B.I. and cholesterol values. A positive Sulzberger test was reported once, but of course we do not know what her calcium intake was at that time. It is of interest to note that her albumin/globulin ratio were 3.1 as against 3.6 Gms. per 100 cc, and that she had some retention of bromsophalein.

Our problem then is to try to explain or correlate (1) a diffuse infiltrative pulmonary disease, which had been progressive over the greater part of a year; (2) the accompaniment of right heart failure, as illustrated by breathlessness, edema, orthopnea, an enlarged liver and positive electrocardiographic findings (the question is of



course whether this might represent an intrinsic myocarditis with its accompanying gallop rhythm, or a process of dilatation); (3) a febrile disease with temperature ranging from 100 to 102; and (4) probably some hepatic disease illustrated by BSP retention and a hyperglobulinemia, disease possibly compatible with congestion due to heart disease, or of course might this represent intrinsic hepatic disease.

I am sure that several thoughts have gone through your minds as well as mine, and some of these I think we might very briefly mention to dismiss.

The first of these is, might thyrotoxicosis be in the picture? The patient had a goiter; there was weight loss in spite of a good appetite; there was nervousness. I give little serious thought to this and wish to indicate that if it were present, it would be incidental. No mention is made of the physical findings which one would anticipate in the presence of full-blown thyrotoxicosis, and one would expect a frank clinical picture of thyrotoxicosis in a 37 year old woman, who had sufficient toxicity to give her a febrile response as well as myocardial disease. Thus in the absence of the clinical findings of thyrotoxicosis, in the presence of a low P.B.I. value, and in the presence of pulmonary disease associated with heart failure, I give little consideration to this possible diagnosis.

Another thought one is certain to have, is the pulmonary reaction to certain extrinsic, toxic substances, either chemical or mechanical? I refer particularly to beryllium, silica, and to the nitrous oxides with their respective clinical conditions of berylliosis, silicosis or silo-fillers disease. The history gives no clue to the exposure to any of these, and I therefore will dismiss them.

Several chronic pulmonary diseases come to mind and must be given serious consideration. We must recall that we are dealing with chronic pulmonary disease accompanied by systemic reaction in terms of fever, a negative sputum examination on numerous occasions, negative skin tests and probably secondary cardiac disease.

The first of these pulmonary conditions to be given serious consideration is that of sarcoidosis, and it is quite clear that this was a clinical impression during this pa-

tient's period of hospitalization, and she was treated for this. There is good reason to suspect that this might have been sarcoidosis. This is a disease with predominance in Negroes; commonly it is a disease of the third or fourth decades of life and a disease with systemic manifestations. In the collaborative studies from Johns Hopkins Hospital and Massachusetts General Hospital series, consisting of 92 cases, the lungs were found to be involved in 86%, the lymph nodes in 86%, the liver in 65%, the spleen in 62%, the heart in 20%, kidneys in 19%, the bone marrow in 17%, and an association of the disease with tuberculosis in 19%. Thus, if one wishes to give sarcoidosis serious consideration in this case, one can do it on the basis of pulmonary disease, intrinsic cardiac disease, and hepatomegaly. Lymphadenopathy or skin lesions would be helpful in arriving at this diagnosis. The pulmonary lesions apparently are compatible with the diagnosis, varying from miliary to larger infiltrates and with fibrosis with possible regression at a later date. Myocardial infiltration by the process might account for the cardiac picture. The increased sedimentation rate and the elevated temperature are compatible with sarcoidosis. Hyperglobulinemia is common, and is often high with levels of 8 to 10 Gms., although in the cases just referred to the findings were 3 to 5 Gms. In 23 of the Johns Hopkins cases 6 showed calcium levels of above 15 mgm., and in 25 cases at the Massachusetts General Hospital 5 had calcium levels above 12 mgm. per 100 cc. The phosphorus is usually normal in spite of the elevation of the calcium, although there may be a variation of this if bone lesions are present. In some of the cases having high calcium levels there may be renal stones. This matter comes to mind since the patient had 3+ Sulkowitch test in the urine once, but it should be recalled that the serum calcium is not elevated.

While the patient was in the hospital sarcoidosis was given serious thought, as we can see from the therapy used, and it is difficult to find anything wrong with this consideration.

Our old friend, the collagen diseases, must be considered within the realm of diagnostic possibility, since we are dealing with



a febrile disease accompanied by systemic symptoms manifested by weight loss. There might be vascular involvement within the myocardium accounting for myocardial disease, and the same pathologic abnormality could account for the variable X-ray picture in the lungs. The hepatomegaly and cardiac failure are entirely compatible with the diagnosis of collagen disease, and these would respond to ACTH medication. On the other hand, it is difficult for me to accept this diagnosis since, if there were such extensive vascular disease in the lungs, I would anticipate some bleeding from the pulmonary tract.

In looking at the X-ray films, one naturally thinks of the possibility of malignancy, particularly of the metastatic type. Carcinoma of the breast rarely presents such a diffuse picture, nor does hypernephroma, though one very rarely sees it with diffuse infiltration along the blood vessels. Furthermore the disease has been of too long standing without other changes to consider metastatic malignancy seriously. Hodgkin's disease is not commonly diffuse when it involves the lungs. Furthermore, it seems quite clear that with this much metastatic malignancy in the lungs, anemia would have developed before this time. I do not know enough details of the adenomatosis in which Dr. Shapiro has been particularly interested, but from what little I know of it, I do not believe that consideration would be given to this.

Someone might raise the question of whether this patient suffered primarily from cardiac disease and secondarily from pulmonary disease. This is difficult for me to accept. The pulmonary picture is not that of congestion; there has been no bloody sputum, and there is no evidence of mitral disease in the protocol.

In more recent years we have heard more of diffuse interstitial fibrosis of the lungs, so-called Hamman-Rich disease. It is difficult to understand why there should have been an increase in the incidence of such cases reported unless it may have something to do with the use of antibiotics in pulmonary infections, which alter the normal course of events in acute pulmonary disease and permit organization of inflammatory exudates and thus fibrosis and thickening of the membrane of the alveoli.

This patient had had pneumonia two years before and received antibacterial treatment for this. Sixteen months later the patient began to have pulmonary symptoms. The hemoglobin and PCV are certainly on the upper limits of normal for a woman. Pulmonary function studies showed a reduction of all compartments, and the oxygen saturation rose from 75% to 90% on therapy with ACTH. (No clubbing of the fingers was mentioned in the protocol.)

In closing, I wonder if this patient might not have had diffuse interstitial pulmonary fibrosis as the etiology of her disease. I believe I will present this as the clinical diagnosis. On the other hand, I must admit that there is much evidence for sarcoidosis.

DR. HERBERT FRANCIS: Five separate x-ray examinations of the chest were made between 9-1 and 10-24-54. There is no significant difference in the findings on the first four examinations except for variable amounts of fluid in the lower parts of the pleural cavities.

On the final examination, a slight but definite increase in the heart size with more pleural fluid and some added haziness of both lung fields and what are thought to be more prominent vascular markings may be associated with cardiac failure and pulmonary congestion. In all examinations, there is extensive interstitial fibrotic change seen throughout both lungs with scattered patchy areas of infiltrates varying from one to two cm. in size. Very extensive emphysematous areas of variable sizes from one or two cm. to several cm. in diameter are seen throughout the lungs. The hilar shadows are not clearly discerned and only a suggestion of any hilar adenopathy is present.

From the above mentioned findings, cor pulmonale may be anticipated. The x-ray findings suggest sarcoidosis.

#### Diagnosis

Sarcoidosis of lungs, mediastinal, tracheobronchial, and mesenteric lymph nodes; hyperthrophy and dilatation of heart, predominantly right side; chronic passive congestion of liver, severe; pulmonary artery embolus with infarction.

DR. JOHN L. SHAPIRO: At autopsy there was great dilatation and hypertrophy of the right side of the heart which was interpreted as an indication of vascular obstruction within the lung as I will describe

later. There was no evidence of intrinsic disease within the heart, though sarcoidosis on occasion does involve the myocardium. Evidence of so-called right side heart failure was prominent. The liver was greatly enlarged due to passive congestion and there was evidence of damage to the extent that functional aberrations noted clinically would be well explained. Neither liver nor spleen showed the granulomatous lesions which were so abundant in the lungs, mediastinal and abdominal lymph nodes.

The lungs were heavy and indurated with numerous large emphysematous bullae over the surface. There was a heavy deposition of carbon in the numerous large areas of scarring. Nodular areas were very numerous; these measured as much as 4-5 cm. Most of these nodular areas were located peripherally in the lung. Finer areas of nodularity were evident in the lungs also and these tended to localize peribronchially. Both bronchi and vessels seemed unduly prominent, as is so often the case with diffuse scarring in the lungs.

Microscopic sections of the lungs showed a great deal of scarring and, in the less dense areas, numerous granulomata of the type shown in figure 1. The designation of

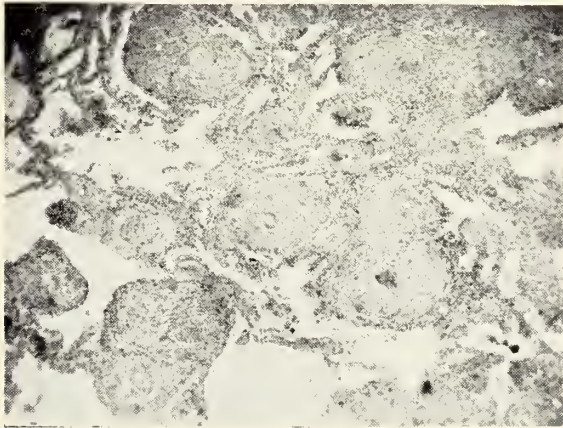


FIG. 1

non-caseating tubercles, classically associated with sarcoidosis fits these lesions well. Let me emphasize, however, that numerous agents may evoke such a tissue response, and ultimately the pathological diagnosis of Boeck's sarcoidosis becomes one of exclusion, as in the present case. Guinea pig inoculations were used to exclude the tubercle bacillus as the etiologic agent, fungus cultures and stains were also done with negative results. It is well recognized that

silicates, beryllium and other non-absorbable material may stimulate the type response seen in this case. We can usually identify these agents with reasonable facility by such characteristics as double refractibility, etc.

In passing, I'd like to comment on the mechanism of vascular obstruction in the pulmonary circulation, which led to right side hypertrophy and eventual failure in the case at hand. There is a great tendency for these lesions to localize perivascularly, probably in lymphatics, and eventual scarring leads to partial occlusion of the vessels. This is illustrated in figure 2. A pul-

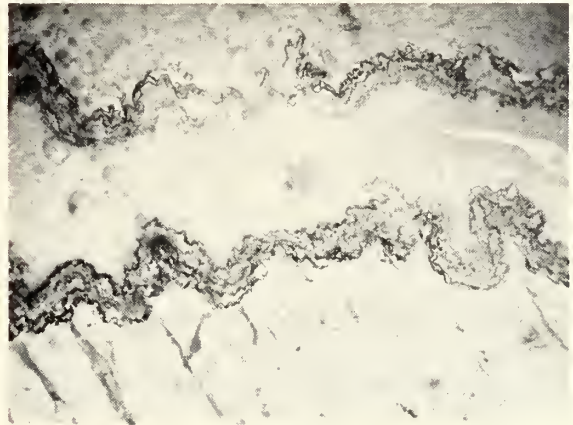


FIG. 2

monary artery with its media indicated by the frayed black fibers, representing elastic fibers, is shown in longitudinal view. The intimal thickening has largely obliterated the vessel lumen. Conceivably this could have resulted from previous thrombosis and canalization but the exact mechanism of such vascular thickening is not clear.

Recent interest in sarcoidosis has centered about its epidemiology and tendency to involve predominantly certain population groups, i.e., Negroes from the southeastern United States. Epidemiological methods, classically associated with infectious disease, promise to yield helpful information in this as well as in numerous other diseases apparently not of infectious etiology.

There was an embolus in a major pulmonary artery with one area of infarction. This was considered largely as an incidental finding.

#### Reference

- Cummings, M. M., Dunner, E., Schmidt, R. H., Jr., and Bondwell, J. B.: Concepts of the Epidemiology of Sarcoidosis, *Post Graduate Med.* 19, p. 437, 1956.



## President's Page



HARMON L. MONROE

It was my privilege to attend the recent Public Relations Institute conducted by AMA in Chicago. One of the highlights of the institute was a report by representatives of eight medical societies, state and county, on successful public relations projects which they had carried out during the past year.

Other outstanding features of the program included comprehensive discussions of systems of socialized medicine presented by spokesmen from Germany and Canada, problems involving prepaid health insurance, and a report on AMA legislative activities.

I shall not go into a detailed description of the institute . . . this information appears on the "Tennessee Ten" page of the JOURNAL. I should like to discuss briefly what I consider to be perhaps the most important point made during the two-day institute: organized medicine, on every level, must be constantly aware of the necessity for continuous evaluation of its public relations and for taking action to assure successful programming.

An important connotation is observed in the name given that department of TSMA responsible for the association's public relations: public service. Thus, we see that the foundation of our public relations program is good service, which, in turn, creates good public relations.

The manner in which we, as doctors, serve the public, i.e., providing excellent medical care under the free enterprise system, does not unfortunately, result in universal acceptance. We are constantly under attack by many groups who would change, distort, or scrap our free enterprise system. Their arguments may not be valid, but they are frequently very convincing.

It is a matter of grave concern to me that many of our county medical societies in Tennessee apparently give little or no thought to their public relations. Evidence to support this is found in the many critical comments, spoken and published, which filter into the TSMA headquarters.

I strongly feel that it is the duty of each county medical society to analyze and assess its relationship with its public; to make an objective attempt to determine whether any problems exist which can be corrected. Then, going a step further, it should make a sincere effort to develop programs which will further improve its public relations.

Two phases are involved here. The first is primarily defensive in nature and involves problem definition and solution. The second is more positive and dynamic and results in improving that which may already be good.

May I urge every county medical society which does not have a public service committee engaged in an active public relations program to initiate action in this direction. Staff assistance to all county societies is available, upon request, from the TSMA Public Service Office. But to be effective, a good public relations programming must take place at the county society level.

As stated in "The Tennessee Ten," in which the concept of public relations for TSMA is outlined, "You—the individual physician—are the Association, the Profession. The Public Service Program must be YOUR program."

*H. L. Monroe, M.D.*



# THE JOURNAL

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SEPTEMBER, 1959

## EDITORIAL

### SOME OBSERVATIONS ON URINARY SEDIMENT EXAMINATION IN THE DIAGNOSIS OF RENAL DISEASE

As diagnostic procedures are elaborated and amplified, they necessarily become more complex. This maze of investigation soon pushes simple procedures into the land of a forgotten entity. This applies in particular to the examination of the urine.

The urinalysis, therefore, has ceased to be done as carefully by the doctor as it was before the day of intravenous pyelography, cystograms, and renal aspiration biopsy. The older clinician was deft at studying the freshly voided specimen, particularly the microscopic examination of the sediment. This now rarely occurs. It is more common that the specimen is collected by a technician often in an unclean bottle or bed pan, then taken to the laboratory where it sits for hours, either near a bunsen burner while bacteria gain momentum in growth,

or placed in an ice box for overnight preservation. During this time bacterial growth, decomposition and digestion of the urinary formed elements occur. Hours and some times days later in large clinics, the sediment is studied.

As pointed out by Kay<sup>1</sup>, the study of the sediment is important now as before. For example, in a patient with hematuria, the finding of red blood cell casts limits the diagnostic possibilities to only a few diseases and at the same time strongly suggests that cystoscopic study will be fruitless. Likewise, visible bacteria in a fresh specimen properly collected is a more conclusive observation than a positive urine culture, which is so very frequently misleading.

In addition, color photomicrography has helped a great deal in studying urinary sediment abnormalities. By mixing oil red in diethelene glycol with urinary sediment oval fat bodies or compound granule cells may be detected. These cells indicate the presence of desquamated tubular epithelial cells.

Kidney disease is as widespread now as formerly, with the exception perhaps of a decreased incidence of post-streptococcal glomerulo-nephritis, following the incorporation of antibiotic therapy into today's use. However, the widespread and frequent use of the urinary catheter has resulted in a high incidence of lower urinary tract infections. In any event, a return of the attitude that the physician himself should look at the sediment of a freshly collected urine should prove fruitful.

## Reference

1. Kay, Calvin F.: Some Observations on Urinary Sediment Examination in the Diagnosis of Renal Disease, Tr. Am. Clin. and Climat. A., 70:75, 1958.

A. W.

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### REPORT OF THE MEETING OF THE JOINT COUNCIL TO IMPROVE THE HEALTH CARE OF THE AGED, WASHINGTON, D. C., JUNE 12 & 13, 1959

Thomas F. Frist, M.D.

Chairman, TSMA Committee on Aging  
Chairman, Tennessee Council on Aging

The obvious objective of the first annual conference of the Joint Council to Improve

the Health Care of the Aged, held recently in Washington, D. C., was to do something definitive to improve the care of our nation's aging population and, at the same time, to head off the progress the government is making toward socialization.

But to some of us from Tennessee who attended, perhaps the most startling revelation was the opinions expressed and the attitudes presented by governmental leaders, some of whom did not participate in the conference.

The Joint Council is composed of representatives of the American Medical Association, the American Dental Association, the American Hospital Association, and the American Nursing Home Association. Its organization followed the realization that the Forand Bill and other similar types of medical-social legislative proposals were gaining an alarming amount of support in Congress.

From the standpoint of numbers, the problem of our nation's population can be clearly stated. There are presently some 15 million persons in the United States 65 years of age and older. Census estimates put that population at 25 million persons by 1970.

It is significant to note that this potentially represents the largest block of voters of any one group, with the possible exception of labor. Obviously, the politicians have become extremely interested in this section of our population.

Congressman Fogarty, a highly respected representative of Rhode Island, was one of the principal speakers at the conference. He had prepared a speech, which was handed to the press in advance of his actual talk. However, his remarks went far afield from those which he had distributed in advance.

He made these points: (1) in a great many states, doctors have refused to reduce their fees to the aged; (2) pensions and social security are too low to take care of hospital and medical care charges; (3) the government will necessarily have to finance and supply this care.

He further stated that "this is already being done in the area of housing, and will probably be done to a greater extent."

Congressman Fogarty is the author of the

bill which sets up the White House Conference on Aging in 1961 and calls for each state to stage a conference on aging before that time.

The most alarming note during the conference was sounded by Gov. Robt. B. Meyner, New Jersey, reportedly a contender for the Democratic nomination for President. Gov. Meyner did not attempt to shade the issue. He stated flatly that the government had to support the old people; that it was impossible for the old folks to pay the cost of hospitalization and medical care at this time; and that the private insurance companies are doing an inadequate job. He insisted that nearly every time a person goes to the hospital, even if he has insurance, it does not cover more than about one-half of the hospital and doctor bills. He made a point that this one-half is so much more than the whole amount used to be, that people cannot afford it and we, therefore, must have government health insurance to defray these mounting costs, at least, for those over 65.

He further declared that government insurance will come about just as social security came about. He contended that social security has been successful and has established itself; therefore, it is logical that the same thing will happen for all people over 65 who need hospital and medical care. He stated that he is unequivocally in favor of compulsory government insurance for people over 65 years old.

We talked to him after his speech and asked him whether he thought an individual was responsible for taking care of himself in his old age, and whether his family and other local resources should be brought into play to provide this care.

His answer: "No. I don't think this is true. There are too many millions of people who are not as fortunate as you and I. These people are not getting care, and it is up to the government to see that they do get care. Furthermore, I intend to do my best to see to it that they do get this care!"

While in Washington a few of us from Tennessee took the opportunity to visit several congressmen and other important public officials. To our amazement we heard things that we had no idea were so prominent in the minds of our public officials.



All of those contacted impressed us with the fact that they are constantly pressed by their constituents concerning the problems of aging and medical care in general. Only one of the congressmen was unequivocally against the Forand Bill. We learned that Mr. Forand is a highly respected and influential member of Congress. The gist of all the congressmen's conversation was this: As individuals they, themselves, got good medical care, but they were deluged with letters concerning medicine. The main complaints were the high cost of medical care, the refusal of doctors to make home visits, the long waiting in doctors' offices. They referred to people on salaries of \$300-350 per month having fees of \$300 for simple operative procedures as appendectomies. When it was tactfully suggested to them the greatly rising cost of every other service, it made no impression on them. They said by far the greatest number of complaints were directed toward the medical profession and its allied services. They also pointed out they were there to represent the thinking of the majority of their constituents. They pointed out that medical care is a necessity, and if the people, especially the old people, are not getting the proper care under the present system, then they are going to be forced to resort to government-sponsored insurance program of medicine.

They further stated in many states doctors have refused to reduce their charges to the aged and since pensions and social security are too low to take care of hospitalization, medical and nursing care, the government will be forced to finance and supply this care. When some of us pointed out the tremendous cost to the government, the socialism of such a move, the fact that government control would lead to inferior medical care, etc., it made no impression.

The main thing we learned is that regardless of whether or not there are merits in government controlled medicine, this subject is uppermost in the minds of many people; and even though we of the medical profession know that what these people are saying is most impractical and will lead to inferior care, nevertheless, it is being accepted as sound by a large segment of the population.

The Tennessee State Medical Association is acutely aware of the problems which face its members through such threats of political punitive action in Congress. It is moving ahead to correct whatever faults may exist with the system of private medical practice in this State.

One positive stride forward has been the organization of the Tennessee Council on Aging. Activity which brought about the organization of the Council was initiated by the Tennessee State Medical Association, in an effort to do something constructive and substantial about the problems of the aging. TSMA recognizes that these problems are not only of a medical nature, but involve economic and social factors as well.

The Council presently includes in its membership 31 organizations which, in addition to medicine, include labor, dentistry, law, public health, health insurance, management, education, and senior citizens groups, as well as other agencies interested in and looking toward a solution of the problems of Tennessee's aging population.

I feel strongly that we, as doctors, must accelerate our efforts toward positive activity in this field. Time is running out. We must not, like the ostrich, put our heads in the sand and ignore what is going on. Washington is buzzing; the Tennessee Legislature is acutely aware of the situation. Therefore, every doctor in Tennessee should become equally aware of this fact and feel a personal responsibility to do what he can to combat in every way this galloping socialism. We must take more interest in whom we elect. We may have to fight fire with fire.

We are no longer swimming against the stream. We are now swimming against the waterfall. It is going to be most difficult to effect even a compromise, but it can be done if we, as individuals, do our part.

## DEATHS

**Dr. Herbert Lee Pope**, 57, Knoxville, died July 14th at Fort Sanders Presbyterian Hospital as the result of a heart attack following surgery.

**Dr. W. T. DeSautelle**, 75, Knoxville, died on August 9th at St. Mary's Hospital.



## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Chattanooga-Hamilton County Medical Society

The regular monthly meeting of the society was conducted in the Interstate Building on the evening of August 4. The scientific program consisted of the following: "Pulmonary Granuloma" by Dr. Stewart Auerbach; "Radiologic Findings in the Arthritides" by Dr. John M. Higgason and a case report by Dr. J. Hicks Corey, Jr.

### Roane County Medical Society

The regular monthly meeting of the society was conducted in the Oak Ridge Hospital at 7:30 p.m. on July 24, 1959. The guest speaker was Mr. Jack Drake, Director of Public Service for the Tennessee State Medical Association. Mr. Drake's subject was "Medical Public Relations."

### Memphis-Shelby County Medical Society

The Memphis and Shelby County Medical Society met on Tuesday evening, July 7, 1959 at the Institute of Pathology. The meeting was called to order by the President, Dr. Ralph O. Rychener. The scientific program consisted of a paper entitled "Exfoliative Gastric Cytology in the Diagnosis of Lesions of the Stomach" by Drs. Richard O. Bicks and Sidney Coleman. This interesting research problem was illustrated by slides and discussed by Drs. Cummins, Livermore and Erickson.

## NATIONAL NEWS

### The Month in Washington (From AMA Washington Office)

The House Ways and Means Committee has put aside until next year the so-called Forand bill which is opposed vigorously by the medical profession.

But supporters of the legislation have made clear that they will press for action by Congress next year when politics will be paramount because of the presidential and Congressional elections in November.

The Ways and Means Committee took no

action on the legislation after five days of hearings highlighted by the Eisenhower Administration lining up with the medical profession in opposition to it.

Arthur S. Flemming, Secretary of Health, Education and Welfare, told the committee that "it would be very unwise" to enact such a bill. He warned of "far-reaching and irrevocable consequences." It would freeze health coverage of the aged "in a vast and uniform government system" and would mark the beginning of the end of voluntary health insurance for old persons, he said.

Secretary Flemming later promised to report to Congress early next year on possible alternatives, including Federal subsidies to private carriers of health insurance for the aged. But he took no position on any of the alternatives for the time being.

Summing up the hearings, Dr. F. J. L. Blasingame, Executive Vice President of the AMA, said: "It was shown that it would be most unfortunate for the federal government to move in for political reasons and attempt in a compulsory fashion to solve by legislation, problems which are being, thoughtfully considered at the state and local level by the medical profession and other dedicated members of the health team."

Main support for the bill, which was sponsored by Rep. Aime J. Forand (D., R.I.) comes from organized labor. The legislation would increase federal Social Security taxes to finance hospital, surgical and nursing home care for Social Security beneficiaries.

Although this bill has been shelved for the time being by the House Committee, the problems of the aged are being studied by a Senate Subcommittee headed by Sen Pat McNamara (D., Mich.). The Subcommittee on Problems of the Aged and Aging of the Senate committee on Labor and Public Welfare has held public hearings intermittently in Washington. It also planned to hold hearings in various other cities.

In his second appearance before the Senate Subcommittee, Dr. Frederick C. Swartz, Chairman of the AMA's Committee on Aging, reported that state and local medical associations "have moved promptly" to make the AMA's six-point "positive health

program" for the aged "an effective and workable instrument."

Dr. Swartz said that the problem of financing health services for the aged is "a temporary, not a permanent one" because "each year, more and more of the Americans who are reaching 65 are covered" by voluntary insurance.

\* \* \*

Congress voted a compromise \$400 million appropriation for medical research. The amount was about \$80 million less than approved by the Senate, but was more than \$100 million above the Eisenhower Administration's request for the National Institutes of Health.

The allotments for research in specific fields included: cancer, \$91 million; mental health, \$68 million; heart, \$62 million; arthritis, \$47 million; neurology, \$41 million; and allergy, \$34 million.

### Medicare Dissatisfaction

Doctors and dependents alike are unhappy with reduction in Medicare benefits which went into effect last October as a money-saving expedient. The program director of Medicare told a Senate committee recently that servicemen's wives and children are being denied needed surgery as a result of the new rules and that they should be repealed.

### Veterans Medical Care

Veterans Administration is resolutely holding out against overtures by AMA that it deal with one intermediary, on a uniform fee schedule basis, in contracting for "home-town" medical care outpatient services.

## MEDICAL NEWS IN TENNESSEE

### New Hospital in Carter County Dedicated

Carter County's new \$1,300,000 Memorial Hospital at Elizabethton was dedicated on July 24th. Principal speakers at the dedication was Senator Estes Kefauver and Dr. Alex Shipley, regional director of the Tennessee Department of Public Health. The board of control of the hospital is headed by Dr. E. L. Caudill, Sr., chief of the medical staff, Judge Ben Allen and Mr. Basil L. King, administrator.

### Postgraduate Seminar on Psychomatic Problems

A one day seminar for doctors throughout Middle Tennessee was conducted on July 19th at Montgomery Bell Park Inn, Montgomery Bell State Park. The meeting was sponsored by Eli Lilly Company.

Physicians were offered courses designed to show them psychological and emotional factors connected with practicing medicine today. Emphasis was placed on case studies.

The Andrew Jackson Chapter of the Tennessee Academy of General Practice, in cooperation with the department of psychiatry of the Vanderbilt School of Medicine, hosted the event.

### Cancer Society Will Conduct Six Year Study

Tennessee probably will be included in the largest medical statistical study ever attempted in America this fall when the American Cancer Society begins a massive survey to discover more about the disease and its cause or causes, according to a recent announcement from Dr. C. C. King of Memphis, President of the Tennessee Division of the Cancer Society.

One million Americans will be interviewed in the project, which will take six years to complete. A.C.S. officials state that the survey may reveal previously unsuspected facts about the causes of cancer.

### UT Medical College Offers Post Graduate Courses

Eleven postgraduate courses for physicians will be offered by the University of Tennessee College of Medicine beginning in September and continuing through July, 1960. The courses and their dates are: Radiology—September 14-18; Trends in Cardiovascular Surgery—October 21-23; Ophthalmology—October 28-29; Allergy—November 5-6; Conference on Steroids—November 13-14; Obstetrics and Gynecology—February 24-26, 1960; Anesthesia for the General Practitioner—March 17-18; Recent Advances in Pediatrics—March 30-April 1; Psychiatry for the Family Physician—May 4-6; Fractures and Dislocations—May 18-20; and Tumors—Diagnosis and Treatment—July 27-29.



Further information may be obtained by writing Wallace Mayton, Director of the Postgraduate Department, 62 South Dunlap, Memphis 3, Tennessee.

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Three new pediatricians have joined the staff of the division of pediatrics at the University of Tennessee College of Medicine at Memphis. They are: Dr. Ray Mackey, Dr. Norman Johnson and Dr. Arturo Abilli.

★

Research grants totaling \$4,500 have been awarded to the Department of Urological Surgery at the University of Tennessee College of Medicine. Dr. Sam L. Raines, department head, said a grant of \$2,000 was received from the Stuart Company of Pasadena, California, for a pilot study in acute pyelonephritis. Investigators will be Dr. William H. Morse, Dr. Albert W. Biggs and Dr. Raines.

★

A \$15,000 grant from the National Science Foundation for the study of the influence of Thyroid hormones on mitochondria—tiny cell particles which furnish energy for tissue growth and other life processes. The study, directed by Dr. Samuel R. Tipton, UT zoology professor, is being conducted on rat liver mitochondria. According to Dr. Tipton, the research is basically a study of the growth of tissue in the animal body.

Another grant of \$4,688.29 has been made by the Easter Seal Research Foundation. This grant will be used on a research project on neuromuscular diseases. These studies will be conducted by Dr. James N. Etteldorf and Harris L. Smith.

★

An electrical engineer has joined the staff of the UT Medical Unit to help with a new phase of heart research. Dr. Daniel A. Brody, professor of medicine and laboratory director, said of the establishment of the post, that "it emphasizes the greatly expanding activity in the field of medical electronics."

## PERSONAL NEWS

**Dr. Eugene Ryan** has recently become associated with Drs. Havron, Taylor and Headrick in the Tri-City Clinic at South Pittsburg, Tennessee. He was formerly in practice at Ooltewah.

**Dr. Daniel H. Framm**, pediatrician, has joined the staffs of Tepper Clinic and Tepper Hospital in Chattanooga.

**Dr. R. R. Bowes**, Nashville, was recently conferred the degree of Master of Medical Science by the College of Medical Evangelists at Loma Linda, California.

**Dr. J. Marsh Frere, Jr.**, Knoxville, spoke recently on radiation protection at the Knoxville X-ray Technicians Society. His topic was "Half Safe Is Not Safe Enough."

**Dr. Thomas Frist**, Nashville, has been named by Governor Buford Ellington as co-chairman of the Governor's Committee to prepare for the White House Conference on the aged, in 1961.

The Carter County Memorial Hospital medical staff has elected **Dr. E. L. Caudill, Sr.**, chief of staff at a recent organizational meeting. Other officers of the medical staff are **Dr. E. T. Pearson**, vice chief of staff; **Dr. W. G. Frost**, head of the surgical division; **Dr. R. J. Allen**, chief of obstetrics department; **Dr. John A. Knapp**, medical department head; and **Dr. Royce Holsey**, secretary and treasurer.

**Dr. Lewis W. Moore**, Chattanooga, announces the opening of his office as an eye, ear, nose and throat specialist in Chattanooga.

**Dr. Leslie E. Eason** has joined the medical staff at the Nobles Memorial Clinic at Paris.

**Dr. W. Webb Wilson**, Jackson, has recently joined the staff of the Jackson Clinic in the department of ophthalmology.

**Dr. Robert W. Trotter** is associated with Dr. Milnor Jones in the practice of general surgery at Athens.

**Dr. James L. Thomas**, Jackson, has opened his office for general practice where he will be affiliated with Pearce Clinic.

**Dr. William L. Taylor** has returned to Lewisburg and will be associated with **Dr. J. C. Leonard**.

**Dr. Robert I. Bourne, Jr.**, Mt. Pleasant, has recently joined the staff of Benton Hospital at Camden.

**Dr. W. H. Blackburn** has returned to his practice at Benton Hospital after completing a residency in obstetrics and gynecology in Nashville.

**Dr. Fred B. Ballard, Jr.**, has opened an office for the practice of internal medicine and cardiology in Chattanooga.

**Dr. Jesse C. Hill**, Knoxville, was the subject of a recent newspaper feature article on the growth of medical science in that area.

**Dr. Earl Eversole, Jr.**, is now associated with **Dr. Robert R. Bigelow** in the practice of surgery at Oak Ridge.

**Dr. George Pakis, Jr.**, is now associated with the Jackson Clinic at Jackson. He will practice obstetrics and gynecology.

**Dr. N. H. Swann, Jr.**, Chattanooga, has been named a full partner of Newell & Associates.

**Dr. Joseph C. Fox**, Jellico, has re-opened the Bethany Hospital in Jellico where he will practice.

**Dr. Joseph K. Wallace**, Sweetwater, has an-



nounced the opening of his office for the practice of medicine.

**Dr. Will G. Quarles, Jr.**, has announced the opening of his office for the practice of medicine at Livingston. He will be affiliated with **Dr. H. B. Nevans**.

**Dr. William N. Jernigan** announces the opening of his office in Columbia for the practice of medicine for diseases of infants and children.

## ANNOUNCEMENTS

### American Heart Association

The 32nd annual Scientific Session of the American Heart Association will be held October 23 through 25 at Convention Hall, Philadelphia. The American College of Cardiology is conducting its Interim Meeting to coincide with the Heart Association's Scientific Sessions. The Heart Association's Annual Dinner will be held on Sunday evening in the Bellevue Stratford Hotel. Registration and hotel accommodation forms are now available from the Association, and advance registration is urged.

### Postgraduate Course in Pediatrics at Vanderbilt University School of Medicine

The Pediatric Department at Vanderbilt University School of Medicine announces another Postgraduate Day for Thursday, October 29, 1959, to be held at Vanderbilt University Hospital, beginning at 9 a.m. Pediatric concepts which have been clarified in the last few years will be discussed, as well as other recent advances in prevention and treatment. Interesting clinical material on the Service at the time will be presented. The course is approved for 7 hours of Category I credit by the American Academy of General Practice. Tuition is \$15.00 which includes the luncheon. For further information address the Department of Postgraduate Instruction, Vanderbilt University School of Medicine.

### Southeast Missouri Cancer Conference

The sixth annual Southeast Missouri Cancer Conference is scheduled for Cape Girardeau on Sunday, October 4. Designed for physicians from Southern Illinois, Western Kentucky, Northern Arkansas, Northwestern Tennessee and Southeastern Missouri, the one-day cancer conference is offering an unusual program.

Guest speakers will include Chester Cassel, M.D., clinical associate and professor of medicine of the University of Miami school of medicine; Robert A. Green, M.D., clinical associate and professor of medicine, University of Minnesota school of medicine; Donn G. Mosser, M.D., director, division of Radiation therapy, University of Minnesota school of medicine and Stuart W. Arhelger, M.D., clinical assistant and professor of surgery, University of Minnesota school of medicine.

Registration will take place at 12:30 p.m. with the clinical sessions getting under way at 1:30. Subjects included in this session will deal with thyroid diseases, office diagnosis and procedures, isotopes in diagnosis and treatment and lesions of distal bowel.

A hospitality hour will be held at 5:00 p.m. and a dinner at 6:00 p.m. At 7:00 p.m. the evening clinical session and diagnostic symposium will be held.

The conference is sponsored by the American Cancer Society, the Missouri State Medical Association, the American Academy of General Practice, and the Cape Girardeau County Medical Society. All sessions will be held at the Colonial Tavern restaurant.

### Piedmont Post Graduate Clinical Assembly

September 16 and 17 are the dates named for the Piedmont Post Graduate Clinical Assembly to be conducted in the Clemson House, Clemson, South Carolina. Tennessee physicians are invited to hear the following: Dr. Claude Starr-Wright, Medical College of Georgia; Dr. William C. Thomas, Medical College of Florida; Dr. D. M. Bergenstal, National Institute of Health; Dr. E. G. Herndon, Emory University School of Medicine; Dr. Harris D. Riley, The University of Oklahoma Medical School; Dr. Elmer Tuttle, Emory University School of Medicine; Dr. C. Z. Bowers, Louisiana State University, New Orleans; Dr. George V. Irons, Jr., Donaldson Air Force Base Hospital; and Dr. Robert P. Grant, National Institute of Health.

### The American Fracture Association

The American Fracture Association will conduct its 20th annual meeting, November 1-4, 1959 at the Roosevelt Hotel in New Orleans, Louisiana.

### American College of Allergists Congress

The American College of Allergists Graduate Instructional Course and Annual Congress will be held February 28 to March 4, 1960 at The Americana Hotel, Bal Harbour, Miami Beach, Florida. For information contact, John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

### Physicians Licensed to Practice Medicine in Tennessee

Milligan, Monte C., Memphis  
Hasselle, James E., III, Memphis  
Rowland, Joseph P., Memphis  
Linton, Eugene B., Knoxville  
Evans, Meredith, J., Middlesboro, Ky.  
Young, Luther F., Chattanooga  
Rogers, David E., Nashville  
Moore, John H., III, Kingsport  
Peebles, John D., Jr., Memphis  
Ahler, Albert J., Harriman  
MacMillan, Charles W., Nashville  
Lewis, Malcolm R., Elmhurst, Ill.

### Post-Grad Cruise

The University of Tennessee College of Medicine will give physicians an opportunity for postgraduate education while sailing the Caribbean for eight days next January.

The eight-day cruise will leave from New Orleans January 15 and visit Nassau in the Bahamas; Havana, Cuba; and Montego Bay, Jamaica, spending four days in these ports of call.

The cruise is made possible through the cooperation of the Tennessee Academy of General Practice.

The physicians will sail aboard the TS Ariadne, a vessel owned by the Hamburg American Line in Hamburg, West Germany. The Allen Transfer Service in New York City made arrangements for the voyage. Physicians will spend about five days at sea and each morning from 8:30 until 12:30 seminar sessions will be held. The sessions

will include lectures on a variety of medical topics, lantern slide projection, and motion pictures on surgical procedures of interest to general practitioners. The physicians may be accompanied by their wives.

Twenty hours of postgraduate credit is offered by the American Academy of General Practice to those who make the voyage. The cost of the trip will be approximately \$350.

The faculty will include:

Dr. M. K. Callison, dean of the College of Medicine; Dr. Harwell Wilson, chief of the Division of Surgery; Dr. R. H. Kampmeier, professor of medicine, Vanderbilt University; Dr. I. Frank Tullis, chief of the Division of Medicine; Dr. L. W. Diggs, head of the Department of Medical Laboratories; Dr. James G. Hughes, professor of Pediatrics.

Further information may be obtained from the Postgraduate Department of the University at 62 South Dunlap.



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## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville, Tennessee.*

### Locations Wanted

A 33 year old married physician. Presbyterian. Graduate Bowman Gray School of Medicine. Desires general practice in association with other doctor in east Tennessee community where there is a hospital. Available December, 1959.

LW-330

A 37 year old married physician. Presbyterian. Graduate Tulane University. Desires associate or clinical practice in Ob-Gyn in middle or east Tennessee community of 25,000 or over. Available immediately.

LW-331

A 33 year old married physician. Baptist. Graduate University of Tennessee. Desires general practice and surgery in east Tennessee community of 5,000 or over. Available immediately.

LW-333

A 39 year old married physician. Protestant. Graduate University of Louisville. Desires clinical practice in internal medicine in west or middle Tennessee community of 15,000 to 35,000. Has 3 years internal medicine residency. Available immediately.

LW-334

A 35 year old married physician. Baptist. Graduate University of Louisville. Has 4 years general surgery residency. Desires to specialize in surgery in east or middle Tennessee community of 20,000 to 80,000. Available immediately.

LW-336

A 39 year old married physician. Protestant. Graduate University of Cincinnati. Desires clinical, assistant or associate practice in surgery in Tennessee community of 50,000 or over. Available October, 1959.

LW-337

A 24 year old married physician. Methodist. Graduate University of Tennessee. Desires general practice in association with other doctor or private. Prefers middle or west Tennessee community of 800 or over. Available October, 1959.

LW-338

A 40 year old married physician. Presbyterian. Graduate University of Vienna. Desires to specialize in Roentgenology in hospital or clinic, in Tennessee community of 10,000 to 50,000. Available immediately.

LW-341

A 33 year old married physician. Presbyterian. Graduate University of Madrid, Spain. Board eligible in neurosurgery. Desires associate or as-

sistant practice in neurosurgery in Tennessee community of 100,000. Available immediately.

LW-342

A 36 year old married physician. Protestant. Graduate Louisiana State University. Has 1 year surgery residency. Desires location in east or middle Tennessee community for general practice. Prefers associate, assistant, or clinical work. Available immediately.

LW-343

### Physicians Wanted

Medical clinic in middle Tennessee desires physician 55-60 to handle emergency room in evening. Excellent salary. Position ideal for physician retired but desiring some light practice. PW-121

Middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area, 8,000. Located 72 miles from Nashville and about 32 miles from 3 hospitals. Agriculture and small industry. Excellent high school and elementary school. Adjacent to one of state's finest recreational areas.

PW-123

Four partner clinic in northwest Tennessee community of 10,000 desires associate under 35 years of age for general practice. Hospital located in community.

PW-124

Middle Tennessee Community of 1700 desires general practitioner age 25-40 interested in rural practice. No other physician in community.

PW-125

Physician in west Tennessee town of 500,000 desires an associate for internal medicine practice. Office space and some equipment provided.

PW-126

Physician in east Tennessee community of 30,000 desires an associate general practitioner and surgeon. Office space and some equipment provided.

PW-127

Clinic in east Tennessee community of 4,000 has opening for general practitioner interested in Obstetrics. Hospital located in community.

PW-128

Northwest Tennessee community of 1200, trade area 3,000. Desires general practitioner. Nearest hospital 16 miles. Office space available. Near large recreational area.

PW-129

Physician in middle Tennessee town of 200,000 desires an associate general practitioner. Office space and equipment available.

PW-130

Southern Tennessee community of 1000 desires general practitioner to replace physician who is leaving community to join hospital group in another community. Nearest hospital 15 miles. Office space available. Good location.

PW-131



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# Journal of the Tennessee State Medical Association

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One of the by-products of aging and of good medical care is the saving of lives but often with a disability. The medical profession needs to learn that the doctor's real duty may begin after the patient has been discharged, let us say, from the surgeon's hands. Mental health is as important, and often more so, than physical health. Rehabilitation and placing the handicapped person in a productive job may represent psychiatric treatment. The doctor should not discharge a patient until he has fulfilled this aspect of his duty.

## Employment of the Physically Handicapped in the State of Tennessee\*

MARCUS J. STEWART, M.D.,† Memphis, Tenn.

During World War II, nine million American citizens were disqualified for military service. Since then, the problem of the physically handicapped and their utilization in the national resources has become of paramount importance. Our ally, the British Empire, had no classification of 4-F, but utilized their physically handicapped, rehabilitating them for some form of military or home service.

### Looking Back

Since the middle ages, man has come to realize that the handicapped may contribute tremendously to the progress of the community, state, and nation. No more dramatic example ever lived than Tennessee's own native son, President Andrew Jackson.

In a report in *Surgery, Gynecology, and Obstetrics* by Frances Tomlinson Gardner of San Francisco entitled "The Gentleman from Tennessee," are recounted the infirmities of Andrew Jackson from his boyhood. At the age of twelve he was wounded in the Revolutionary War, discharged from a British prison camp with smallpox and a raging fever, and sent home to die. As a child he was afflicted by malaria, dysentery, "the big itch," and many other devastating diseases; from infancy to manhood poor An-

drew was a drooler. From repeated injuries and battles he carried bullets in his chest and arm for life. He developed bronchiectasis and fibrosis of the left lung, osteomyelitis of the left humerus, repeated and serious attacks of dysentery intermitten fever, rheumatism, osteomyelitis, gastritis, nephritis, and amyloidosis. With that magnanimous spirit which so often sustain him, he in 1828, at the age of sixty-two, ascended to the Presidency of the United States. It is said that on the day of his inauguration, wracked with pain and fainting with weakness, he spurned the use of a carriage and walked bareheaded from his inauguration to the White House. Jackson served two full terms as President of the United States afflicted with some of the greatest physical handicaps that ever beset a human being. It is said that a twentieth-century man faced with such symptoms and infirmities would withdraw from the world and retire with misgivings to a little white cot in the sunshine.

Many great men, yes, presidents, doctors, lawyers, and leaders of our nation, have been sorely afflicted with various and sundry handicaps, but have striven on contributing to the good of our nation and mankind. Many less potent souls if given an opportunity will also contribute to our great nation.

### Lesson of World War II

During World War II it became very evi-

\*Read at the Annual Meeting of the Tennessee State Medical Association, April 13, 1959, Memphis, Tenn.

†From the Campbell Clinic and the University of Tennessee College of Medicine, Memphis, Tenn.



dent that something should be done for the handicapped people of our nation. In 1947, the President of the United States organized a President's Committee to investigate the possibility of a more constructive program for rehabilitation and hiring of the physically handicapped. Vice Admiral Ross T. McIntyre was appointed chairman of that committee, an office which he served with distinction from 1947 to 1954, and he continues his great contribution in this field even now. He was succeeded in 1954 by Major General Melvin J. Mass, U. S. Marine Corps Retired, ex-United States Senator from Minnesota.

#### General Melvin J. Mass

Chairman Mass, himself afflicted with many debilities and handicaps, is said to have crowded into his sixty years what the average man would take more than one hundred and twenty to accomplish. He has had to fight, and fight hard, for his accomplishment. He has diabetes and arthritis, four-fifths of his stomach has been removed, he has false teeth, and the unbelievable handicap of being totally blind. This last affliction comes as a shock to most of his television and luncheon club audiences who have heard him speak. He often refers to himself as one of the handicapped, for as he states, "I've got false teeth." I heard him say recently, when having a little difficulty getting to the microphone, "Please forgive me, I'm a little hard of seeing." In spite of his many handicaps and infirmities, with his unfurled banner and motto of "Hire the Handicapped: It's Good Business," he has visited every state and territory of the union, made a dozen flights to Europe and Central America, all in four years.

Recently, General Mass appeared before the Senate Labor and Public Welfare Committee and made a strong endorsement of the bill presented by the Honorable Lister Hill, Senator from Alabama. Senator Hill introduced on February 2, 1959, to the Eighty-Sixth Congress, a joint resolution entitled "The International Health and Medical Research Act," which he in short entitled "Health for Peace Act." This joint resolution is designed to establish machinery to help mobilize this country's health and research resources so that our scientists

can participate effectively in a concerted attack in co-operation with research scientists of other lands against the still unconquered diseases that have baffled and plagued mankind through the centuries.

In short, this measure will provide the means for American medical science to sound a world call for a common attack and a common advance against the killers and cripples of mankind.

It further states, we seek from this program no benefits for ourselves except those which can be shared more broadly and with every nation and every people, the benefit of the knowledge of the nature of diseases and disabilities which still afflict mankind, and the technics and facilities which are necessary to combat and overcome them. Of course, this benefit to our nation would be a very, very great one, a benefit beyond monetary value.

General Mass in commenting on this bill states that during the past few years he has attended several international conventions and congresses, both in Europe and on the American continent, and has always come away with the deep personal conviction that *Rehabilitation is Truly the Pathway to Peace*; that in healing the bodies of mankind we are making a giant step forward toward healing their souls with a saving chrism of peace in our time. Many other people to whom rehabilitation has come almost like a saving genie out of the lamp in this twentieth century are little concerned with politics or the strategy and tactics of war, hot or cold. But the men, women, and children, whether brown, yellow, black, or white, who have been healed by the modern miracles of rehabilitation in the last post-war decade and the bitter aftermath of Korea, these world citizens now understand that the language of disability is universal, and that the white-clad doctor and nurse or the neatly packaged saving serums are advance agents of world brotherhood and of a world at peace.

We believe that medicine cannot stop at the hospital ward, but that restoration and rehabilitation include all the related services available today as a spur to full and complete return to employment. Some doctors may get a shock when they are told that medicine has an employment responsi-



bility, but more and more of them are coming to see the light, thanks to some of the fine doctors themselves who have shown the way.

General Mass states that the President's Committee continues to engage in a war of ideas to prove that *ability is the one important factor* regardless of the presence or absence of physical disability. Someone has said that we have taken the "lie" out of liability and fashioned a new truth: ability counts, not disability. The President's Committee has worked with countries around the globe in making available to them the fruits of our labor and the labor of others who have engaged with us in this modern crusade to return to disabled people their rights and duties in the field of employment. Many individuals and companies throughout our great nation are contributing immeasurably to the progress in employment of the handicapped. The instructive movies made by such companies as Hughes Aircraft Corporation on "Employees Only," Liberty Mutual Insurance Company on "A Place for Courage," and Bankers Life on "America's Untapped Assets" are making great contributions to this project.

#### The Doctor's Part

We in all fields of medicine and surgery have been striving since the dawn of our profession to relieve the suffering of mankind and to restore ability to the handicapped. Throughout my past twenty years of practice, including five years of military service, it has become more and more apparent to me that it is not sufficient to restore man's anatomy and the function of that anatomy, and then leave him unoccupied in a world of competition and strife. We must enlist leaders in our communities and doctors in our hospitals to assume more responsibility in helping to restore these men to a constructive, functioning, economically solvent capacity that they may again take their rightful position as breadwinners, taxpayers, and socially adjusted members of the community. This has been so well phrased by the beloved Admiral McIntyre, who said, "We perpetrate a fraud upon the individual and the taxpayer if we rebuild the body and then permit it to stand useless"; or, as that great father of medicine,

Galen, said some two thousand years ago, "Employment is nature's best physician. It is essential to human happiness."

#### State and Federal Policy

Since 1947 there has been a Governor's Committee for Employment of the Physically Handicapped appointed each year by the Governor of the State of Tennessee. This committee functioned vigorously for one week out of the fifty-two, that is, in the month of October during NEPH week (National Employ of the Physically Handicapped). However, in 1956 under the guidance of Governor Frank Clement and the chairmanship of Mr. William Todd of Kingsport and Vice-Chairman Mr. Ramon Davis of Nashville, our state treasurer, a program was begun for a year-round activity, not just one but fifty-two weeks out of the year. The state legislature appropriated a small sum of money and hired Mr. Ernest F. Richards as full-time Executive Secretary for the Governor's Committee for Employment of the Physically Handicapped. Mr. Richards has done an outstanding job in the past two years, 1957 and 1958. He has thoroughly investigated the problem in the state, he has personally prepared and edited a manual for organizing a year-round program—a program so well conceived and so efficiently executed and outlined that it has been requested by the President's Committee to be used as a yardstick for organization in other states throughout the nation.

Let us now review the problem as presented at the beginning of 1957. The President of the United States, in his State of the Union Address and in subsequent messages, indicated clearly that his administration is dedicated to the increase of opportunities for the disabled, that they might take their rightful place in the social and economic life of our communities. He states,

"There are now two million disabled persons who could be rehabilitated and thus returned to productive work. Under the present rehabilitation program only sixty thousand of these disabled individuals are returned each year to full and productive lives. Meanwhile two hundred and fifty thousand of our people are annually disabled; therefore we are losing ground at a

distressing rate. The number of disabled who enter productive employment each year can be increased if the facilities, personnel, and financial support for their rehabilitation are made adequate to the need.

"Considerations for both humanity and national self-interest demand that steps be taken now to improve this situation. Today, for example, we are spending three times as much in public assistance to care for nonproductive disabled people as it would cost to make them self-sufficient and taxpaying members of their communities. Rehabilitated persons as a group pay back in federal income taxes many times the cost of their rehabilitation.

"There are no statistics to portray the full depth and meaning in human terms of the rehabilitation program, but clearly it is a program that builds a stronger America."

When the President signed Public Act Law 565 furthering the work of rehabilitation, he pointed out two reasons for the far-reaching influence this work would foster.

"In the first place, it re-emphasizes to all the world the great value which we in America place upon the dignity and worth of each individual human being.

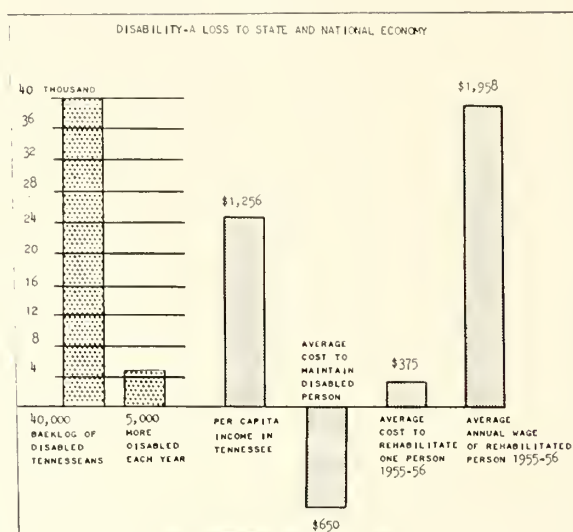
"Second, it is a humanitarian investment of great importance yet it saves substantial sums of money for both federal and state governments."

#### In Tennessee

Now let us see what this problem of disability is doing in our own state economy. It is estimated that in the year 1957, the per capita income of all Tennesseans was \$1,256. Each disabled person is not only kept from earning his pro rata share, \$1,256, each is costing \$650 annually of someone else's money to maintain him.

During the fiscal year 1957, 1,852 disabled people were rehabilitated and placed in employment by the Tennessee Division of Vocational Rehabilitation. The average annual wage of these rehabilitated 1,852 people was \$1,958. The average annual income of this same group prior to vocational rehabilitation was \$202.42. This is an average annual wage increase of \$1,756.42 for each of these 1,852 people, which means an annual increase of \$3,252.889.84 to our state and national income. (Fig. 1)

FIG. 1.



\*Reprinted by permission of the Division of Vocational Rehabilitation of Tennessee from "Tennessee's Vocational Rehabilitation Program and Expansion Plans, Biennium 1957-1959."

It is still appalling, though, to realize that there are 40,000 disabled Tennesseans waiting and seeking rehabilitation. Many more are totally dependent, but this 40,000 backlog are people who can be rehabilitated, and they are joined each year by another five thousand who have become physically disabled in that year. In round numbers, this leaves us increasing our disabled people at the rate of approximately three thousand a year, a most distressing figure. In 1958 only 2060 people were rehabilitated in Tennessee.

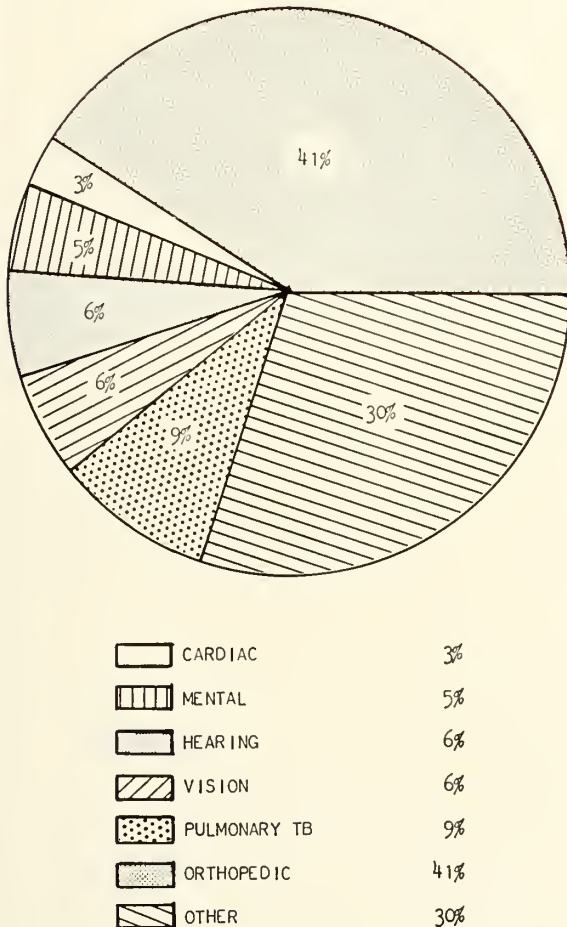
*Types of Disability.* The types of disability have been broken down as follows:

Cardiac	3 per cent
Mental	5 per cent
Hearing	6 per cent
Vision	6 per cent
Pulmonary tuberculosis	9 per cent
Orthopaedic	41 per cent
Others, such as:	30 per cent
Diabetes	
Epilepsy	
Urological disorder	
Neurological disorder	
Gynecological disorder	
and similar impairments	

These figures may be more dramatic when we look at them in so-called round figures. For example, in Tennessee there are over 4,000 amputees; over 6,000 individuals with cerebral palsy; over 2,000 with multiple

sclerosis; over 1,000 with muscular dystrophy; some 1,700 paraplegics; over 2,000 with difficulty in speech and hearing—and you must bear in mind that these figures of disabled people are being increased yearly at an appalling rate. (Fig. 2)

FIG. 2  
TYPES OF DISABILITIES



\*Reprinted by permission of the Division of Vocational Rehabilitation of Tennessee.

### What Can You Do?

We, as individuals, as leaders in our community, can contribute tremendously to the solution of this Herculean problem. In the past two years, throughout the state of Tennessee, there have been established Mayors' Committees for the community, town, and city. Some of these are functioning well, others are dormant, and others have been disregarded. You, as an influential citizen

in your community, can be the spark that puts this Mayor's Committee into action and relieves the suffering of the physically disabled in your own home town. It is gratifying to note that some of the towns from the beginning of the program have made great strides in work with their Mayor's Committee; cities like McMinnville, Smithville, Clarksville, Sparta, Cookeville, Newport, Hartsville, Humboldt, Memphis, Kingsport, Johnson City, Lawrenceburg, and now many more are springing into action.

The first step after organizing an active Mayor's Committee and investigating your local problems of the handicapped is to survey the physical activities and working conditions necessary to fill the jobs in your community, whether farming or industry. Investigate these from the standpoint of using all the ability of the handicapped, not of limiting the job because of his physical disability. This may, in a few instances, require slight changes in job duties or machine control. Changing the levers from right hand to left or from hand to foot or vice versa may result in a handicapped person's becoming a safe, efficient, productive employee. In short, with proper appraisal of the physically impaired person, and suiting him to the job or vice versa, his abilities will often far outweigh those of an able-bodied employee. His desire to succeed and to maintain employment is an ever-driving force toward perfection in production.

Call to the attention of your local Mayor's Committee and the local employers at every opportunity that industry is proving over and over, "It is profitable to employ the physically handicapped." Industry, labor, and insurance are realizing this more all the time. Mr. George Meany, President of the A.F. of L. and C.I.O. recently stated:

"We have always believed that it is a man's ability that counts, not his disability.

"Our unions are determined to do what they can to see that a person with an impairment is not refused the opportunity to earn a living.

"We believe that management should take an enlightened view of this problem, but we also believe in accepting our own share of this responsibility.

"I urge all members of organized labor,



as well as the general public, to help in the National Program to give the physically handicapped equal job opportunity. It is the fair and square thing to do. It is the American way."

We must keep in mind and propagate the idea that a handicapped worker is a safe worker, that his percentage of accidents is far below that of the so-called able bodied. His influence on the man working beside him is good because his presence is a constant reminder to his colleagues to be careful, and the handicapped worker is exceedingly careful because "A burned child dreads the fire."

The Hughes Aircraft Corporation has done a stupendous job in hiring the physically handicapped. The United States Air Force in hiring civilian employees has a large percentage of physically handicapped doing their jobs most efficiently. Both of these organizations will tell you that their rate of injury or second injury among the handicapped is far less than that among the able bodied.

#### Conclusions

May I reiterate that in 1947 the first President's Committee for Employment of the Physically Handicapped was initiated; that

under the guidance of great men it has progressed rapidly and fruitfully; that it is now headed by the indomitable spirit of Major General Melvin Mass:

That the Governors' Committees of the various states have now organized in a full productive program for propagating employment of the physically handicapped, and that the various cities and communities throughout the various states are now organizing active Mayors' Committees;

That our own Governor Ellington has continued a firm endorsement of this program; and

That the devastating economic strain of supporting the handicapped can only be conquered by the concerted efforts of each and all of us working in our own communities to help our patients to regain health and employment.

It is the physician's and surgeon's responsibility to see his patient healed through the arts of surgery, medicine, and complete rehabilitation, and then returned to productive employment and economic solvency. For, as Galen stated, employment is nature's best physician. And as Major General Mass, our blind chairman of the President's Committee, continues with his motto, "Hire the Handicapped: It's Good Business."

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#### BOWEN'S DISEASE AND ITS RELATIONSHIP TO SYSTEMIC CANCER. James H. Graham and Elson B. Helwig. *A.M.A. Arch. Dermat.* 80:133, 1959.

The characteristic finding in the disease described by Bowen is a chronic solitary lesion composed of lenticular papules. The histological picture of atypical epithelial proliferation also occurs in multiple, nonelevated, scaly or crusted plaques. Specimens for study were obtained from 35 patients after death and were compared with similar materials from 35 patients with senile keratosis, 35 with squamous-cell carcinoma of the skin, 139 with exfoliative dermatitis, and many other patients with other cutaneous diseases. The average age of onset for the 35 patients with Bowen's disease was 54 years; the duration of the lesion from onset to surgery ranged from 5 months to 30 years. The lesions ranged in diameter from 0.7 to 13 cm with a median of 1.9 cm. They usually

appeared as erythematous, pigmented, crusty, scaly fissured, keratotic plaques. Their configuration varied from round plaques, sharply demarcated from the surrounding tissue, to an irregular, polycyclic, lenticular pattern. They were firm, indurated, rough, and granular to palpation. The first lesion surgically removed was most frequently diagnosed as squamous-cell or basal-cell carcinoma, and only once was the diagnosis of Bowen's disease made at the first examination of a specimen. Surgical excision of the lesion is the recommended treatment; the need for sufficiently wide excision was indicated by the fact that in four patients the lesions were clearly invasive and in two others widespread metastases appeared. The evidence of an association of Bowen's disease with internal and cutaneous cancer was convincing, and it is suggested that the lesions are cutaneous manifestations of a systemic carcinogenic disease process.

For practical purposes, the doctor's management of his patients, whether diagnostic or therapeutic, is a compromise. He must choose between the hazards of what he does and the hazards of disease. Too often the doctor forgets or ignores the hazards of his treatment or manipulations—medical or surgical—in his enthusiasm to do something. Many believe the catheter and its use are not as innocent as is commonly accepted.

## The Urethral Catheter, A Two-Edged Sword\*

GEORGE E. BECKMAN, M.D., Chattanooga, Tenn.

Since the days of the ancient Egyptians, and perhaps longer ago than that period, man has attempted to relieve the acutely retentive bladder by means of the urethral catheter. In ancient times catheters were made of hollow reeds or, in some instances, metal. It is safe to assume that the passage of these instruments caused considerable trauma to the urinary tract and were, undoubtedly, used only as a last resort in a patient who would otherwise die of his affliction. Even though the technics and the instrumentations were probably rather primitive in the light of our present knowledge, the means justified the end as anyone who has ever had acute retention will readily testify. Our present day urethral catheters, however, are considerably less traumatic in their design and are commonly made of soft rubber. The two most common catheters in use today are the red rubber olive tip catheter, or Coude catheter, and the bag catheter, commonly called the Foley catheter.

### Technic and Indications for Catheterization

In spite of our present knowledge of sterilization and correct technic in their use, catheters in general are not the benign instruments they would seem to be at first glance. Probably the single most important question to be answered, when considering the use of a urethral catheter, is not the problem of how to use it, but rather when to use it. The actual passage of a standard catheter is a relatively simple procedure in most instances, except when the urethra is occluded by a dense urethral stricture or by massive enlargement of the middle lobe of the prostate. In the two conditions just

mentioned, it is far better to do nothing for the patient after unsuccessful gentle attempts at passing the catheter, and to seek urologic consultation rather than to attempt to dilate a dense stricture or to pass a catheter by an enlarged prostate, if the operator is not qualified to deal with whatever complications might arise from such instrumentation. I need hardly do more than mention in passing that all instruments, especially catheters, should be adequately sterilized before use, and that the genitalia, whether male or female, must be adequately cleansed with soap and water and some antiseptic before attempting any urethral manipulations. Metal catheters and woven stiff catheters are not recommended.

Probably the foremost need for the use of a catheter is acute retention of urine, whether it be due to obstruction at the neck of the bladder or postoperative retention after surgical procedure and anesthesia. In the first instance, the patient is usually a middle-aged man who enters the doctor's office or the hospital as an emergency complaining of the inability to pass his urine. In this instance it is mandatory that the obstruction be relieved and, in most cases, this is done by a urethral catheter. It is far better in these cases to pass a small Foley catheter on the first catheterization and leave it in place than to attempt to catheterize such a patient in an intermittent fashion with the other types of catheters. It is well known to urologists that after a man has developed acute retention he will probably continue this until the obstruction is corrected. It is, therefore, much safer to leave a retention catheter in place than to catheterize the patient intermittently and allow the urine to accumulate over a period of hours. Repeated catheterizations in such patients in many instances will lead to

\*Presented at the meeting of the Tennessee State Medical Association, April 14, 1959, Memphis, Tenn.



rather marked urinary sepsis with chills, fever and, in many instances, positive blood cultures and systemic complications. Prostatic bleeding is a common aftermath of such instrumentation, and in itself may cause retention due to clots. It is, therefore, a much better and wiser procedure to pass a  $\pm 18$  Foley bag catheter and seek urologic help immediately.

In patients who have had some type of operation, urethral drainage will need to be instituted in many of these patients during the postoperative period. It has always been amazing to me to see an otherwise intelligent surgeon write in the preoperative orders in the operating room to catheterize the patient every 8 hours p.r.n., while at the same time large quantities of intravenous fluids are given the patient—both in the operating room and immediately afterwards. Normal kidneys produce approximately one cc. of urine a minute, and under the stimulus of adequate, or more than adequate hydration this is increased to as much as 2 cc. a minute. If we use the larger of the two figures, we find this represents 120 cc. an hour, or 960 cc. in the arbitrary period the surgeon arbitrarily sets as the time for catheterization. This is inviting trouble. Postoperatively a patient should be catheterized when his bladder is full, and not during some arbitrary period set up by the surgeon in charge. The average postoperative patient has probably recovered sufficiently from his anesthetic at the end of three or four hours to tell if his bladder feels full, or it is entirely possible that the surgeon can either palpate the full bladder or percuss it through the anterior abdominal wall. Another diagnostic sign of a full bladder is the sensation of wanting to void when pressure is made over the suprapubic area with the examiner's hands. The bladder, when it has been allowed to over-distend, loses its ability to contract for varying lengths of time, perhaps as long as a week or so, and gradually becomes anesthetic even when enormous quantities of fluid are retained in it. The only solution, if such a thing happens, is to introduce a retention catheter, or Foley catheter, and allow it to remain in place with the urine draining constantly for a period of one to two weeks until the detrusor muscle has regained ade-

quate tone and the ability to empty itself. Let me make one other suggestion, in the elderly surgical patient, either male or female, in whom ambulation will be somewhat delayed, it is frequently better to put in a retention catheter the first time the patient has to be catheterized, to allow the bladder to be at rest, rather than waiting for several days after frequent intermittent catheterizations before instituting such a program. In such cases, a Foley catheter probably can be removed after the patient has been up and about for a day or so, and in most instances he will urinate adequately.

The urethral catheter is useful in one other instance, that is, the obtaining of a clean specimen or a sterile culture from a female. In this instance, the exact procedure is to pass the catheter gently after adequately cleaning the genitalia and, after the bladder has been completely emptied and the specimen obtained, the bladder should be distended to its maximum capacity and irrigated with a 1 to 5,000 solution of potassium permanganate that has been prepared before hand. This irrigation tends to wash the bladder free of any contaminated material that might have been introduced through the catheter, and certainly decreases the amount of post-catheterization infections that we see. The passage of a catheter in a male in order to obtain a urine specimen can only be condemned. A two glass urine specimen with examination of the second glass will be an entirely adequate picture of the patient's upper urinary tract without subjecting him to the hazards of a catheter. It is also possible to obtain a sterile culture from the male by adequately cleansing the glans penis and catching a mid-stream specimen in a sterile culture tube.

#### Contraindications to Catheterization

We have been discussing when to use a urethral catheter, now let us discuss briefly when *not* to use it. I have already mentioned that its use is not indicated in the obtaining of a specimen from a male patient. With this same thinking, it is certainly not justifiable to pass a catheter or instrument on a man who has questionable prostatic disease and the examiner is trying to determine whether the patient has any residual urine. In many instances the mere



passage of a catheter will throw him into acute retention, or at least introduce infection into the bladder that may not clear in spite of antibiotics because of the underlying lesion already present. Such an instance occurred not too many months ago in my office. I had the opportunity of seeing an old gentleman of 60 and more years who had been examined at one of the larger clinics in this country for his annual physical evaluation, and during his stay there was routed through the Department of Urology for evaluation. While there his prostate was massaged, the urine examined, and then a small urethral catheter was passed to determine if he was carrying any residual urine. By the evening of the day of his examination he had chills and fever, and when I saw him approximately three weeks after this instrumentation he still had infection and his urinary symptoms were almost intolerable. He was voiding every few minutes day and night with considerable pain and burning. He had originally complained of only a very few mild urinary symptoms, but subsequent to the instrumentation his symptoms became extremely severe and the infection would not subside even under massive doses of all the known antibiotics. He subsequently has had a suprapubic prostatectomy and the urine is now sterile, but in a man of his age and physical condition a suprapubic prostatectomy is not without some danger. While I must admit that he might have required an operation in any case, this patient's catheterization was certainly not the procedure of choice.

In my own office we determine the residual urine by means of the old routine P.S.P. test. After having the patient empty his bladder we give him 1 cc. of the phenosulfonphthalein and collect a single specimen at the end of 1 hour and 10 minutes. This specimen is compared against the standards and we consider anywhere from 45 to 60% as normal. To have a normal reading, a man must not only have normal kidney function, but he must be emptying his bladder adequately to produce the specimen for us. A specimen of less than this amount will then require further study as to the cause of the decrease in P.S.P. excretion.

The normal urethral bacterial flora consists of many organisms, some of which are saprophytic but many are pathogenic. It is utterly impossible to cleanse the urethra prior to the passage of an instrument and it is, therefore, impossible to prevent the introduction of some of these bacteria into the bladder at the time the catheter is passed. It is entirely possible for these pathogens to remain in the urinary tract and subsequently cause severe damage. The old axiom that the normal urinary tract will sterilize itself may be true, but all too frequently some minor disease prevents this from occurring. An indwelling catheter in the urethra is almost always accompanied by a heavy infection in the bladder within two or three days and in many instances much sooner. While the catheter is in place this infection is seldom symptomatic and rarely causes any fever. It is important, however, to give adequate doses of some antibiotic after the catheter has been removed to clear up this residual infection due to catheterization, and even then we sometimes see persistent pyuria and bacilluria when the urinary tract is not anatomically normal.

In a recent issue of the *Southern Medical Journal* (February, 1959) the editor, in an editorial concerning bacilluria and pyelonephritis, made the following statement which I think will very adequately close this discussion: "More and more with the increasing prominence of chronic disease must, perforce, emphasis be put on prevention. Above all, the doctor should avoid responsibility for inducing disease. Catheterization and instrumentation are pointed out by several authors as probably initiating pyelonephritis in some instances, especially if true bacilluria is present. Suspicion has long been cast on these procedures. Even though the evidence is not incontrovertible, the frequency of true bacilluria makes still more the instrumentation of the urinary tract a procedure to be shunned in the absence of true indications."

#### Discussion

SAM RAINES, M.D., Memphis: Mr. Chairman, Members and Guests—I have enjoyed Dr. Beckmann's paper, and it certainly has a good deal of common sense in it, from which we can all draw some lessons. First, I would like to emphasize

his statement that care must be used in passing a catheter or certainly any rigid instrument when there is a stricture present in the urethra. Indeed, this should be done not only by someone skilled in its use, but also it is well to do it only when an operating room is handy, or really preferably in the operating room, and under anesthesia, if the stricture is very dense. The reason for this is that false passage, hemorrhage and other more serious complications can result, and so considerable precaution is necessary in handling such a situation. The next point I would like to emphasize is in connection with his statement that overdilatation often leads to an anesthetic or partially or temporarily paralyzed bladder. He is entirely correct about this and I would like to emphasize particularly that Bantline, morphine and other types of sedation may lead to acute retention and cause considerable confusion. If this is properly evaluated, then the retention will pass over when the drug is withdrawn.

In this connection, there are many elderly men who are on the borderline of prostatic obstruction and yet are compensating and going along nicely until they enter the hospital and have to remain in bed or for other reasons cannot conveniently empty their bladder. These men may develop acute retention and then need to have a prostatic operation, otherwise they get in trouble. These are the patients to whom he referred when he spoke of a Foley retention catheter being preferable to intermittent and repeated catheterizations. Ordinarily, if this type patient cannot void after one catheterization, it is better to leave the Foley in place, and then have a complete evaluation of the urinary tract and possibly have a T.U.R. or other corrective measures taken.

I can go along with the essayist's dictum of, "no rigid instruments in a man in whom you suspect prostatic enlargement," but I do not quite agree with him about the extreme inadvisability of using a small soft rubber catheter when further information seems desirable. His method of testing the residual by P.S.P. is very good, but it does not always give the information one desires relative to the prostate itself, since it merely indicates

a diminished P.S.P. and further steps have to be taken. These steps usually include catheterization by a soft rubber catheter to thoroughly check the residual content; at the same time an aircystogram can be taken to estimate the degree of protrusion of the prostate into the bladder. This enables one to avoid the use of the rigid instruments which do carry a much higher morbidity than the soft rubber catheter.

Regarding his last paragraph in which he states that we are to shun catheterization in the absence of true indication, I can agree. But there are those who now would have us think that a catheter should not be used even when it is indicated and that is where the danger lies. Much of this reasoning is based on some data published by Dr. Kass of Boston; I was on a panel with him recently and he takes no such extreme view. We are indeed indebted to Dr. Kass and his associates for pointing out to us and emphasizing the dangers of infection in the use of a catheter, and all of us, as urologists, should be fully aware of it, at all times, but I would like to point out that the title "A Two-Edged Sword" applies to most all of our medical remedies, and not just to the urethral catheter. For instance, a drain left in a wound is a foreign body and causes infection, but it is necessary to prevent pooling of dangerous material deeper in the wound. The suture material itself is a foreign body and occasionally causes difficulty, morphine is a two-edged sword, and certainly the antibiotics and "miracle drugs" are two-edged swords whenever they are used. I mention this merely to emphasize the fact that while we must recognize the inherent dangers of the use of a catheter, we must not go overboard and speak of shunning its use upon all occasions.

Time does not permit an extended discussion at this point, but when there is obstruction with retained urine, or when valuable information is needed, I believe our old and ancient friend, the catheter, will prove useful and helpful for many years to come. Surely we must not use it carelessly or inadvisedly, but like other things, when it is necessary, we certainly should avail ourselves of its benefits.

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**OCULAR MANIFESTATIONS OF THE CHRONIC RENAL TUBULAR INSUFFICIENCY SYNDROMES.** Harold F. Falls, A.M.A. *Arch. Ophthalmol.* 62:188, 1959.

It is now possible to explain the association of certain conspicuous types of ocular disorder with insufficient renal tubular reabsorption. Three such disorders are Lowe's cerebro-ocular syndrome (congenital or early infantile cataract with hydrophthalmos), pseudohypoparathyroidism, and Fanconi's syndrome (vitamin D-refractory rickets with other extensive metabolic disturbances). A case of Lowe's syndrome in a boy-baby 3 months old is described with emphasis on the ocular and urinary findings. Pseudohypoparathyroidism was observed in a man aged 39 who had always been

confined either to his home or to an institution because of profound mental and physical deficiencies including progressive impairment of vision. In Fanconi's syndrome (not illustrated) cysteine crystals appear in the conjunctiva and cornea. These disorders are readily understood when it is considered that renal tubular reabsorption concerns the phosphates, amino acids, and basic elements. They are important to the ophthalmologist because the characteristic findings enable him to contribute valuable diagnostic information to the internist and others concerned in the treatment of these severe derangements of metabolism. Exact diagnosis is essential not only for effective treatment but also for counselling families in which these derangements occur.



More attention to the early diagnosis of glaucoma is becoming a necessity in an aging population. The methods described in this paper are of aid in early diagnosis, prognosis and in following the course of this disease.

# Clinical Value of Tonography in the Diagnosis and Follow-up of Glaucoma\*

ALICE R. DEUTSCH and ABRAHAM CHEIJ, M.D., Memphis, Tenn.

## Part I

The effect of sustained and prolonged application of a tonometer has been investigated by various authors ever since W. Wegner published his paper on "The Result of Massage on the Normal and Glaucomatous eye" in 1925 (Ztschr. Augenh.). Tonography is a method for evaluating the rate and ease of out-flow of aqueous, based on the measurement of decreasing ocular tension under continued artificial compression of the globe. The decrease in ocular tension is the consequence of an increased rate of escape of aqueous under compression. Measurements of this phenomenon in the past have revealed that the tension in a glaucomatous eye falls less easily than in normal eyes. By means of the studies of Grant,<sup>1</sup> Friedenwald,<sup>2</sup> B. Becker,<sup>3-7</sup> and other authors, appropriate analysis, calculation and a quantitative evaluation of the resistance to aqueous outflow has been achieved, and a constant ratio between the rate of aqueous outflow and the pressure of the eye could be established. These factors made it possible to associate within certain limits of accuracy, variations in intraocular tension with disease or treatment, and to refer them to resistance to outflow or to change in rate of formation of aqueous, fundamental details in the investigation of glaucoma.

Electrical tonography for clinical use was instituted by Grant.<sup>1</sup> He obtained a continuous recording of the ocular tension by applying a Mueller electronic tonometer, attached to a Sanborn strip recorder for five or six minutes. Quantitative evaluation of

outflow only could be obtained by translating into terms of intra-ocular pressure (in millimeters of mercury) and ocular volume change (in cubic millimeters) corresponding changes in tension occurring during the period of tonography. Measurements on intact and on enucleated normal human eyes have shown the rate of outflow or ocular volume change to be proportional to the pressure and dependent upon the amount of resistance in the outflow system. The physical character of the outflow system peculiar to each eye is quantitatively determined by a coefficient in units of cubic millimeter of aqueous flow per minute per millimeter (mercury) of intraocular pressure. The formula for the coefficient facility of aqueous outflow is

$$C = \frac{\Delta V}{T (P_{av} - P_o - P_v)}$$

where C = the coefficient, expressed as cu. mm. per mm. Hg. pressure

$\Delta V$  is the change in ocular volume for the initial and final tonometric reading

T is the time in minutes

$P_{av}$  is intraocular pressure during tonography

$P_o$  is the intraocular pressure of the undisturbed eye as estimated either from scleral rigidity measurements with the Schiotz tonometer or as measured with the applanation tonometer.

$P_v$  is the average increase in episcleral venous pressure during tonometry.

Since glaucomatous eyes differ from normal eyes with regard to elevated intra-ocular pressure  $P_o$  and decreased facility C, those characteristic changes could be expressed more effectively in an empirical formula  $P_o/C$ . It has been established that this ratio was equal to 100 or more in only very few normal eyes, but in most eyes with chronic simple glaucoma, especially after the W.P.T. It has been widely used for in-

\*Read at the meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, April 13, 1959, Memphis, Tenn.



terpretation of the W.P.T., separation of glaucoma suspects, hypersecretion glaucomas and normal eyes.

The calculation of facility of outflow is useful not only for quantitative comparison of outflow characteristics of eyes in various conditions but also allows the computation of the rate of formation of aqueous. This rate of information is obtained by the following equation.  $F \text{ (rate)} = C (P_o - P_v) / P_v - 10$ . The uncertainties in calibration data, in variation of scleral rigidity and precision of measuring procedures influence the accuracy of tonographic determination of the facility of aqueous outflow. Improvements in equipment were made by replacing the Sanborn recorder with a potentiometer on the Leeds and Northrop strip recorder. The errors connected with the individual variation of scleral rigidity in specific eyes were eliminated by using the simplified tables for the rapid estimation of intra-ocular pressure and outflow facilities for eyes of average scleral rigidity based on the 1955 Griedenwald tables and by using Moses and Becker's methods for correction of abnormal scleral rigidity.

In spite of those improvements there are still many difficulties in the performance and theoretical interpretation of tonography. Nevertheless it has proved of great value in the explanation of the physiologic variations and balance of normal intra-ocular pressure, in the refinement of early diagnosis of glaucomas and evaluation of provocative tests. It also has given additional information on the understanding of the pathogenesis of glaucoma and of medical and surgical controls respectively. A significant progressive decrease in average outflow facilities with age was demonstrated by Becker in a series of normal eyes. C values of 0.33 for 40 years or younger dropped to 0.23 in persons over 60 years old. This was associated with a sharp decline in average rate of aqueous secretion after 60, balancing the intraocular tension in all ages. Becker also found that an intraocular tension over 20 mm. Hg. was only present in 7% of the normal population. He therefore implied a scale reading of 4.0 with 5.5 weight to be suggestive for careful evaluation towards glaucoma.

Clinical tonography alone and in combi-

nation with provocative tests is useful in the early detection of glaucoma when employed in association with conventional methods of examination. Low C values were found in glaucoma suspects and in relatives of glaucoma patients at times when no other signs and symptoms of the disease could be discovered, and no rise of the intraocular tension had been present. Flat tonographic curves after W.P.T. and a ratio of  $P_o/C > 100$  could give information on the status of specific eyes in the presence of negative clinical W.P.T. Decreased outflow facilities were found after the mydriatic test (5% Euphthalmine) without significant rise in tension in the presence of a narrow chamber angle. Referring to a statistic by Becker this means a possible recognition of the angle closure mechanism in 85 to 95% of the suspected cases as compared with the routine provocative test, a very significant achievement in a disease in which preventive surgery is curative. In combination with strict clinical supervision tonograms give additional information on the status of medical or surgical control of a given glaucomatous eye. It has been the experience that low C values are of poor prognosis even in the presence of normal intraocular pressure. Those eyes demand a closer follow-up, more intensive miotic therapy and possibly secretory suppression. However, as with any laboratory procedure, conclusions should not be drawn from single tracings, especially not from initial tracings and any over-estimation should be avoided.

For a better demonstration of the problem of tonography and of its significance in clinical practice, we have enclosed a short report on our own experiences and on some specific case histories.

## Part II

Tonography has provided a valuable clinical tool for the diagnosis, evaluation and follow-up of glaucoma.

We can define a tonographic tracing as a graph containing the initial pressure of an eye when the electronic tonometer is first placed on it; the final pressure, after 4 minutes of continuous displacement of aqueous, and the measurement of the facility, or ease, of outflow of aqueous through this 4 minute period.

As a part of this paper, some slides of the

most interesting and enlightening tonographic tracings taken since we started our tonographic laboratory in July, 1958 will be shown.

Tonography was done in all cases with an electronic tonometer connected to a Leeds & Northrop Recorder. These tonograms were interpreted through the 1955 Friedenwald tables already corrected for episcleral venous pressure and scleral rigidity.

The tonograms were taken on private as well as clinic patients. Some of them were borderline cases in which the diagnosis of glaucoma could not have been made previously either by tonometry, visual fields, or provocative tests.

In all cases tonography was done for 4 consecutive minutes in each eye. This preliminary tonogram is called a regular tonogram, following which a provocative test can be performed, either water-provocative, as in cases of wide or open-angle glaucomas, or mydriotic provocative test in the case of narrow angle or angle closure glaucoma. A tonographic tracing taken after a water provocative test is called a water provocative tonogram.

In reviewing the tonograms in this paper, the following abbreviations will be used:

Po meaning pressure

C meaning co-efficient of outflow facility, which represents the outflow of aqueous in cu. mm. per minute of pressure gradient. The normal value for C is 0.28 with a standard deviation of more or less 6 (0.22-0.34).

Po/C meaning a ratio between the pressure and the facility of outflow. This ratio is of the greatest importance in tonography. A Po/C ratio of 100 or less is suggestive of non-glaucoma, while 100 or more is highly diagnostic of glaucoma.

In tonography we have to accept the following assumptions:

1. That episcleral venous pressure is not influenced by placing the tonometer on the eye.
2. That blood pressure does not change during tonography.
3. That the corneal curvature and ocular rigidity of the examined eye correspond to the average normal.
4. That the rate of aqueous formation is not influenced by the tonographic procedure.

5. That there is no change in the volume of blood in the eye during tonography.

Tonography is of great value in anticipating visual field loss. It is also quite helpful in the diagnosis of the so-called low-tension glaucoma. In this diagnosis tonography demonstrates a decreased facility of outflow in the absence of elevated intraocular pressure, which cannot be demonstrated by tonometry alone. Furthermore, tonography, when combined with provocative tests, offers a more sensitive method for the detection of glaucoma than tonometry does. Tonography offers the best way for the diagnosis of hypersecretion glaucoma, in which patients with elevated tension have normal or high values of outflow facility.

### Report of Cases

Case 1. (Fig. 1.) This illustrates a typical to-

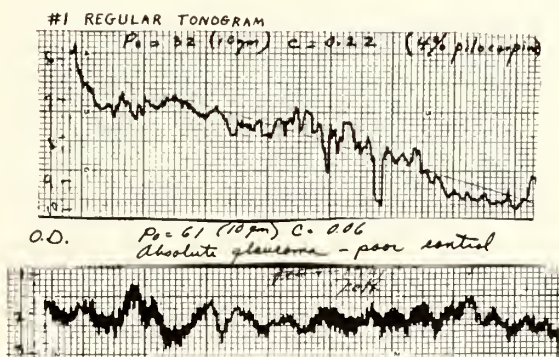


FIG. 1.

nographic tracing of an absolute glaucoma of the right eye. As can be seen, this is the so-called "flat" tonographic tracing. The left eye shows borderline control of the C value with uncontrolled pressure. This patient was receiving 4% pilocarpine q.i.d.

Case 2. (Fig. 2a.) Here is shown chronic simple

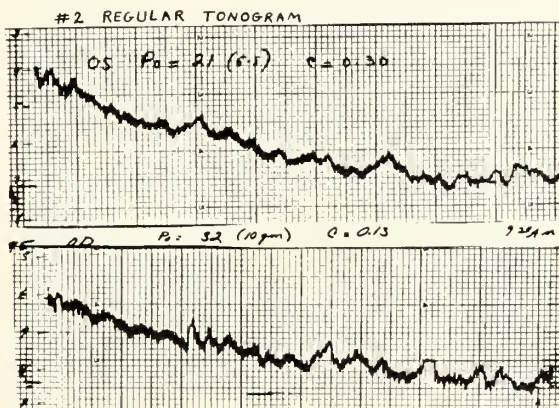


FIG. 2a.

glaucoma in the right eye. Observe the normal C value of the left eye as compared with the de-



creased C value in the right eye. The patient was using 2% pilocarpine only in the right eye.

The next slide (Fig. 2b) on the same case shows

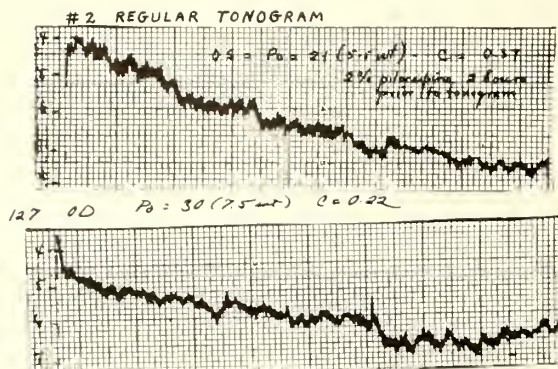


FIG. 2b.

how the C value has improved after increasing the miotic therapy, from 0.13 to 0.22.

Case 3. (Fig. 3.) This shows a tonogram on a

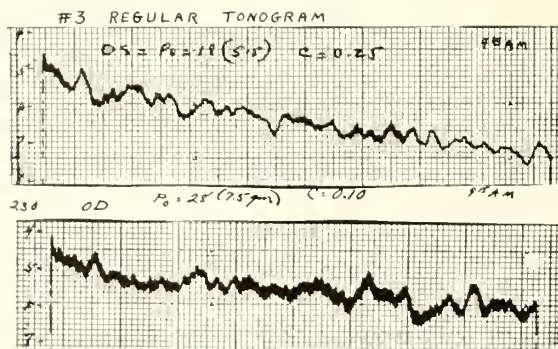


FIG. 3.

patient under miotic therapy in which the left eye is well controlled as far as pressure and C value are concerned. The right eye shows a poor status of control. Note how decreased the facility of outflow is in this eye.

Case 4. The first slide (Fig. 4a) shows a regu-

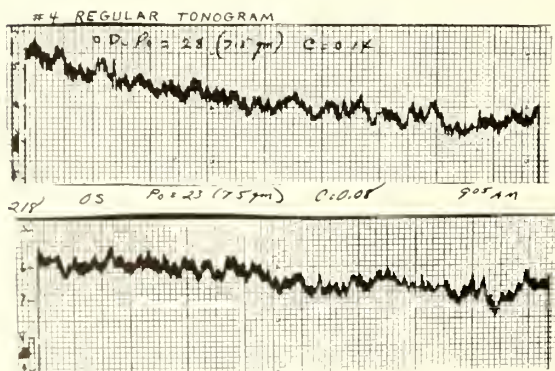


FIG. 4a.

lar tonogram that leaves no doubt as to the diagnosis of glaucoma. Nevertheless, a water provocative tonogram was also taken, and the second slide shows a flat curve. (Fig. 4b.) Observe how the pressures have not increased at all while the facilities are lower. This response to water is

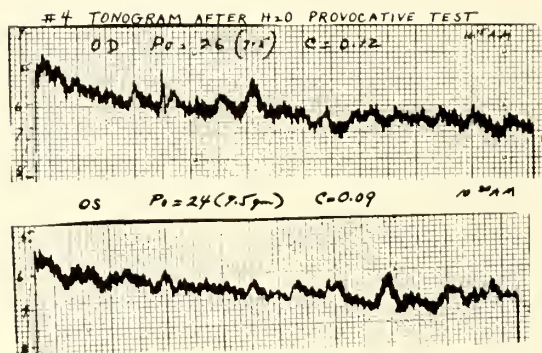


FIG. 4b.

very commonly found in chronic simple glaucoma, showing thus how much more important is a decreased facility than an increased pressure after water. This also emphasizes once again the importance of the  $P_0/C$  ratio.

Case 5. Figure 5 demonstrates a case of uni-

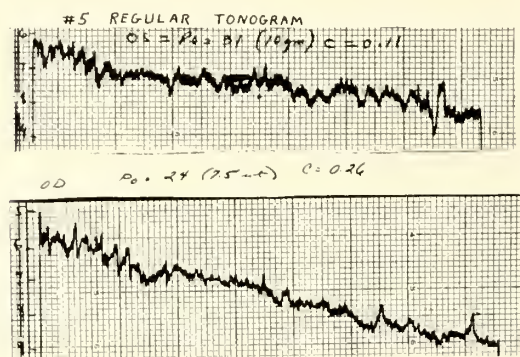


FIG. 5.

lateral glaucoma in the left eye. The right eye shows a steep normal curve. Ophthalmoscopic examination of the left eye revealed marked tortuosity of the retinal veins; on the iris root multiple newly formed vascular loops were apparent.

Case 6. This patient was referred to us on July 9, 1958, because of optic atrophy in both eyes. Visual acuity in the right eye was 20/20 J 1; left eye 1/200. This was a 32 year old colored woman who gave a long-standing history of frequent headaches over the left temporal region, sometimes radiating backward over the occipital region and involving the medial portion of the left supra-orbital region. She noticed failing vision in the left eye 4 to 5 months prior to her first visit. At the time we saw her the intraocular pressure with the Schiotz tonometer was OD = 37.9, OS = 49.8 with a 10 Gm. weight. Gonioscopy showed a grade 2 open angle with an irregular iris root and many small iris tags. The trabeculum seemed to be covered with a delicate membrane.

Figure 6a shows that although the pressures are about the same in both eyes, the C value is more impaired in the left eye than in the right. The right eye did not have any field defect while the left eye had a nerve fiber scotoma. This proves



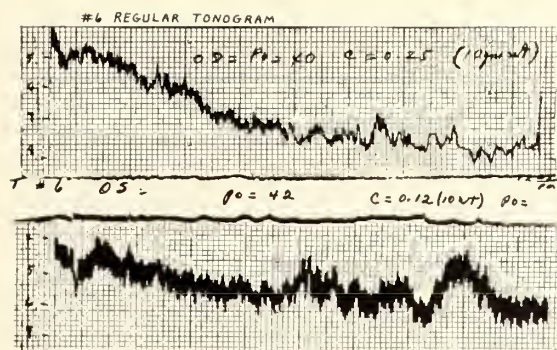


FIG. 6a.

once more that glaucomatous eyes with impaired C value are prone to lose the field more rapidly than those in which the C value is not greatly impaired.

Figure 6b demonstrates the effect of 2% pilo-

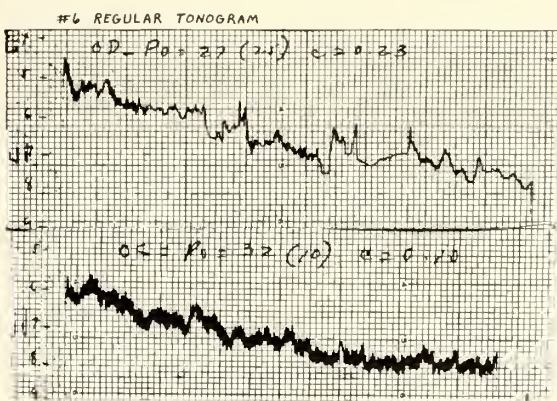


FIG. 6b.

carpine in both eyes. One can observe that the drop in pressure has been much greater in the eye with better outflow facility.

Case 7. Figure 7a shows a regular tonogram

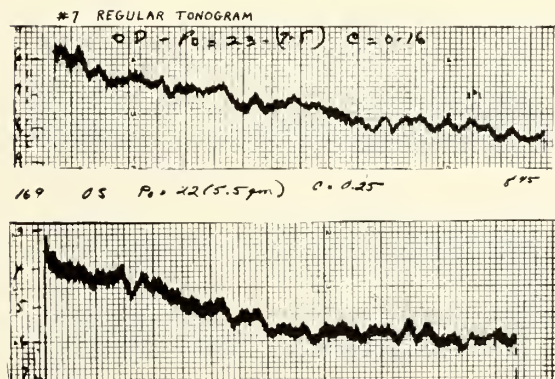


FIG. 7a.

with normal pressures and normal facilities in the left eye; in the right eye the C value is decreased. Figure 7b shows a striking positive water provocative test. The tracings have a flat curve with a corresponding increase in pressure and decrease in C value.

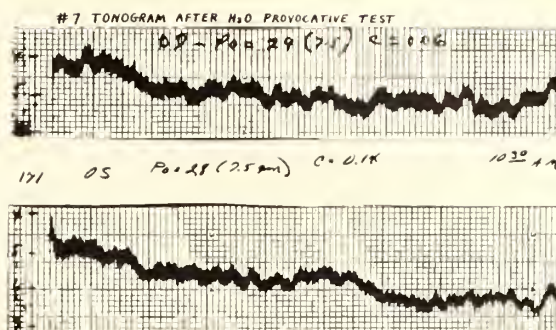


FIG. 7b.

Case 8. This case illustrates a negative water provocative test in a patient who had no glaucoma. Note how the facility of outflow increased after the water drinking test. (Figs. 8a, and b.)

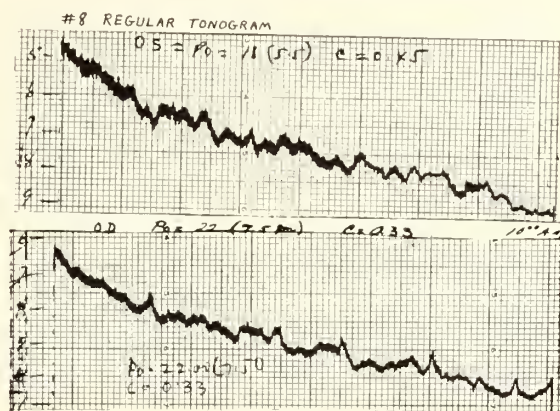


FIG. 8a.

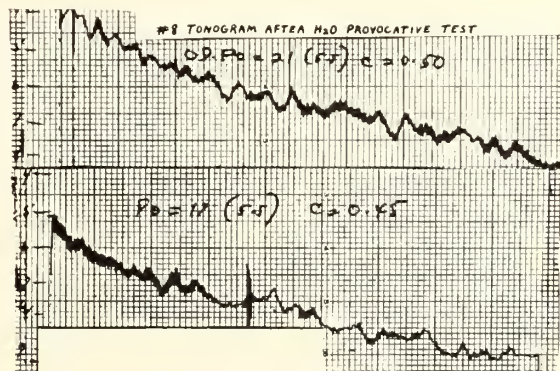


FIG. 8b.

Case 9. This points out the importance of stopping all miotic therapy for at least 3 to 5 days before a water provocative tonogram is attempted. It is well known that miotics lower the intraocular pressure in glaucomatous eyes by improving the facility of outflow. In this case, miotic therapy was not stopped 3 to 5 days prior to the water drinking test, and the result was a negative response, although this was a well known glaucoma case. Nevertheless, in a known glaucoma case tonograms should be taken from time to time to follow the status of control under miotic therapy. (Figs. 9a, and b.)



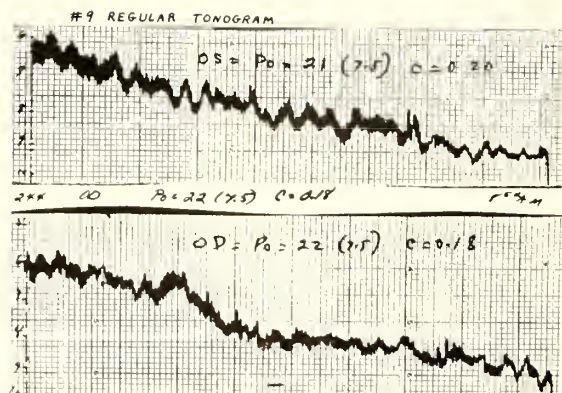


FIG. 9a.

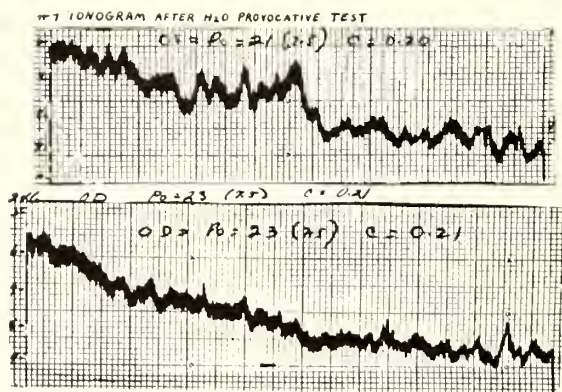


FIG. 9b.

Case 10. This patient has been under observation since Nov., 1951. The tension at that time measured O.D. 30 and O.S. 25. The scleral rigidity was normal. Gonioscopy showed a grade 2 open angle. Peripheral and central visual fields were found to be full. There was an enlargement of the blind spots in both eyes. The fundoscopic appearance of the disks were normal. In July, 1958, examination revealed a visual acuity of 20/20 in both eyes and Schiottz tension of 20.4 in the right eye and 17 in the left. The patient was using 2% pilocarpine in the right eye and 1% in the left. In Dec., 1958 the tension was, right eye 24.4 and left 22.4. At this time a regular tonogram was taken which revealed poor control in the right eye as shown in figure 10. This eye had developed

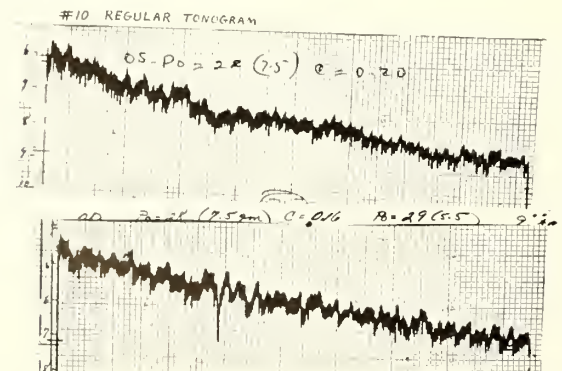


FIG. 10.

a nerve fiber scotoma. The patient was then placed on a more intense miotic therapy.

Case 11. A well controlled glaucoma is shown with regard to the facility of outflow. Pressures are borderline controlled. (Fig. 11.)

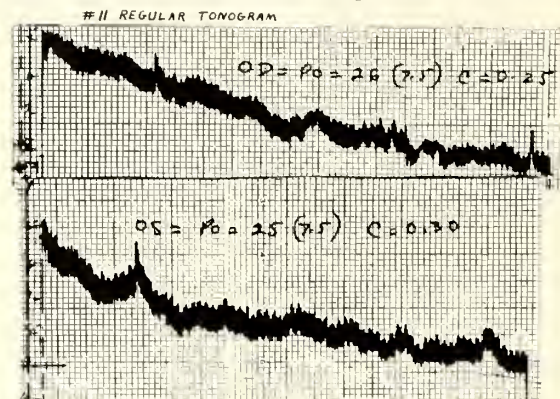


FIG. 11.

Case 12. This is one of very poorly controlled glaucoma, as one can see by the extreme decrease of C value. (Fig. 12.) Nevertheless, the tension

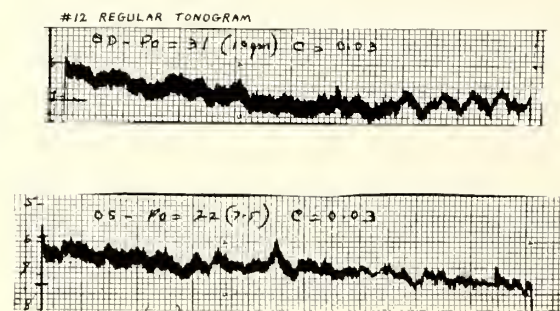


FIG. 12.

in the left eye is 22 mm. of mercury and a regular Schiottz tonometer reading would certainly mislead one as to status of control. This is a case in which loss of visual field occurred very rapidly. Very careful supervision is indicated.

### Conclusion

Tonography has proved itself of great value clinically in the diagnosis, treatment and follow-up of chronic simple glaucoma; and when combined with provocative tests offers the best opportunities for early diagnosis.

### References

1. Grant, W. M.: Clinical Measurement of Aqueous Outflow, A.M.A. Arch. Ophth. 46:113, 1951.
2. Friedenwald, I.: Tonometer Calibration, Tr. Am. Acad. Ophth. 61:108, 1957.
3. Becker, B. and Keshey, R.: Hypersecretion Glaucoma, A.M.A. Arch. Ophth. 56:180, 1956.
4. Becker, B. and Christensen, R. E.: Water Drinking and Tonography in the Diagnosis of Glaucoma, A.M.A. Arch. Ophth. 56:321, 1956.
5. Becker, B. and Thompson, H. E.: Tonography

and Angle Closure Glaucoma, *Am. J. Ophth.* 46: 305, 1958.

6. Becker, B.: The Decline of Aqueous Secretion and Outflow Facility With Age, *Am. J. Ophth.* 46:731, 1958.

7. Becker, B.: The Prognostic Value of Tonography in the Miotic Therapy of Chronic Simple Glaucoma, *Am. J. Ophth.* 46:1, 1958.

### Discussion

J. WESLEY McKINNEY, M.D., Memphis, Tenn.: We all owe Dr. Deutsch and Dr. Cheij a vote of thanks for their excellent presentation of the subject of Tonography.

Several factors have contributed to the slowness of ophthalmologists in adopting this valuable test. It is a time-consuming procedure, and requires much technical exactitude, space and costly equipment. We are fortunate in Memphis to have a tonographic laboratory at the Memphis Eye, Ear, Nose & Throat Hospital where our patients may be tested under the supervision of Drs. Deutsch and Cheij.

I should like now to cite several situations in the diagnosis and management of glaucoma in which tonography is particularly helpful.

(1) The borderline case having a tension of 22, 24, 26, (1955 Schiotz), a normal field, and an open angle: here a coefficient of out-flow having a figure of 0.28 or above, after drinking water would

enable both patient and doctor to be assured that glaucoma is not present. On the other hand, if the C value were below 0.22 the diagnosis of glaucoma would be reasonably certain.

(2) Open angle glaucoma with tension reduced to 22 to 24 (1955 Schiotz) by iridencleisis plus miotics, but with marked field loss since operation,—should further surgery be considered? Tonography showed a coefficient of outflow of 0.32. Therefore, the field loss was considered to be due to disease of the optic nerve, probably arteriosclerotic. A low C value, however, would have been an indication for further surgical treatment.

(3) Acute narrow angle glaucoma whose tension has been brought to normal by miotic therapy but whose past history suggests previous minor acute attacks. The treatment is now surgical. Should it be iridectomy which is almost without danger, or will a filtering operation with its possible complications be indicated? If the outflow mechanism is unimpaired an iridectomy may be employed with the prospect of permanent cure.

One word about the use of the water drinking test with tonography. It should be emphasized that this test is indicated only in the borderline case, and if miotics are being used they should be discontinued for several days before tonography with water-drinking. Tonography alone is of value in determining the efficacy of medical treatment or the filtering operation.

### FAILURES OF HOMOGRAFTS AS ARTERIAL REPLACEMENTS. James A. DeWeese, William D. Woods, and W. Andrew Dale, Surgery 46: 565, 1959.

Because of the widespread renewed interest in the direct surgical attack on arterial disease using arterial homografts, autogenous veins and synthetic prosthesis an analysis of failures which were thought to be directly related to the choice of an arterial homograft was made. Eight complications directly attributable to the use of homografts as the arterial replacement formed the basis of the report. The complications which occurred were classified as follows: (1) aneurysms, (2) rupture, (3) rupture into intestine, (4) thrombosis, and (5) infection.

The aneurysmal failures were thought to be due to the inability of the homograft to retain or develop satisfactory tensile strength. Many homografts, of course, do not develop this failure. However, it has been found impossible to determine by any yet known means which arterial homograft will be the one to fail in this manner.

Rupture of a homograft was thought to represent a failure because of inherent technical difficulties in the use of homografts. It was also stated that it was felt that this is technically a human error and it is not the type of mistake which could be made with the use of a synthetic prosthesis.

Rupture into the intestine was also thought to represent a failure of the homograft due to inherent technical difficulties in their use. These

ruptures occurred late and it was thought that inflammatory and foreign body reaction to the silk sutures resulted in eventual necrosis and weakness which permitted the section of the blood from the homograft into the adherent intestine.

Primary thrombosis of the graft probably was related to changes within the graft itself. Defects of the graft at the site of suture and pathologic changes affecting the intima of the graft were among the known causes of primary thrombosis of the homografts.

Infection also represented a failure of the homograft due to the inherent technical difficulties and in particular the difficulties associated with the sterilization of the grafts. The authors emphasize the idea that the morbidity and mortality resulting from homograft failures was not due to the concept of the direct surgical attack upon vascular disease but was the fault of the material used. It was their feeling that a synthetic prosthesis is the better material for aorta replacements and that an autogenous vein is preferable for peripheral artery replacement. If no suitable vein is present then one may use a synthetic material for replacing a peripheral artery. During the relative short time that arterial homografts have been used, the incidence of failure such as described has ranged from 1.6 to 8.9% in large series of cases. It was felt that this number would increase with time as further pathologic degeneration of the homografts occur. (Abstracted for the Middle Tennessee Heart Association by Edmund W. Benz, M.D., Nashville.)



Anything that may help to cast light on the pathogenesis of coronary atherosclerosis is of interest and is worthwhile. The studies described are of interest.

# An Evaluation of Coronary Artery Disease with Paper Electrophoresis\*

R. J. LEFFLER, M.D.,† Knoxville, Tenn.

The purpose of this paper is to report a paper electrophoretic method for estimating lipoproteins and calculating atherogenic indices, and to present some clinical evaluations of coronary artery disease using this method.

## Method

We have used a constant technic, developed from the studies of Bengt Swahn,<sup>1</sup> and measured with the Spinco Analytrol RB.

A durrum type of electrophoretic cell (series C, Spinco) was used with Whatman filter paper strips and buffer at a pH 8.6 (B-2, Spinco); 0.02 ml. of serum was added to the strips and the cell plugged into the power supply (Duostat, Spinco)

\*Read at the meeting of the Tennessee Society of Pathologists, April 13, 1959, Memphis, Tenn.

†From the Laboratory Department of the East Tennessee Baptist Hospital, Knoxville, Tenn.

Supported in Part by the East Tennessee Heart Association.

at a constant voltage of 4.5 milliamperes for 16 hours. The strips were then placed in a pre-heated oven at 110° C. for 20 minutes to insure complete coagulation of the proteins. Sudan black B stain was prepared by adding 1 Gm. of the dye slowly to 1 liter of 60% ethanol. This solution was brought to boiling while agitating the flask, then cooled under running tap water and filtered. The solution was again boiled, cooled, and filtered. The strips were stained for four hours, then washed in 1 liter of 55% ethanol for 15 minutes and a second wash of 1 liter of 55% ethanol for 8 minutes. The strips were blotted as dry as possible and allowed to dry completely at room temperature. The lipoprotein stained strips were scanned with a densitometer (Analytrol RB, Spinco) with the 2 mm. slit width. The atherogenic index was calculated from the integral count of the densitometer which quantitates the amount of lipoprotein stained.<sup>1</sup> The formula is

$$A.I. = \alpha + 1.75 \beta$$

where the alpha and beta curves are separated at X, located as the distal peak or plateau on the beta curve (Fig. 1). This corresponds to about S<sub>4</sub> as compared to ultracentrifuge studies. The choice of the location of X is partially arbitrary

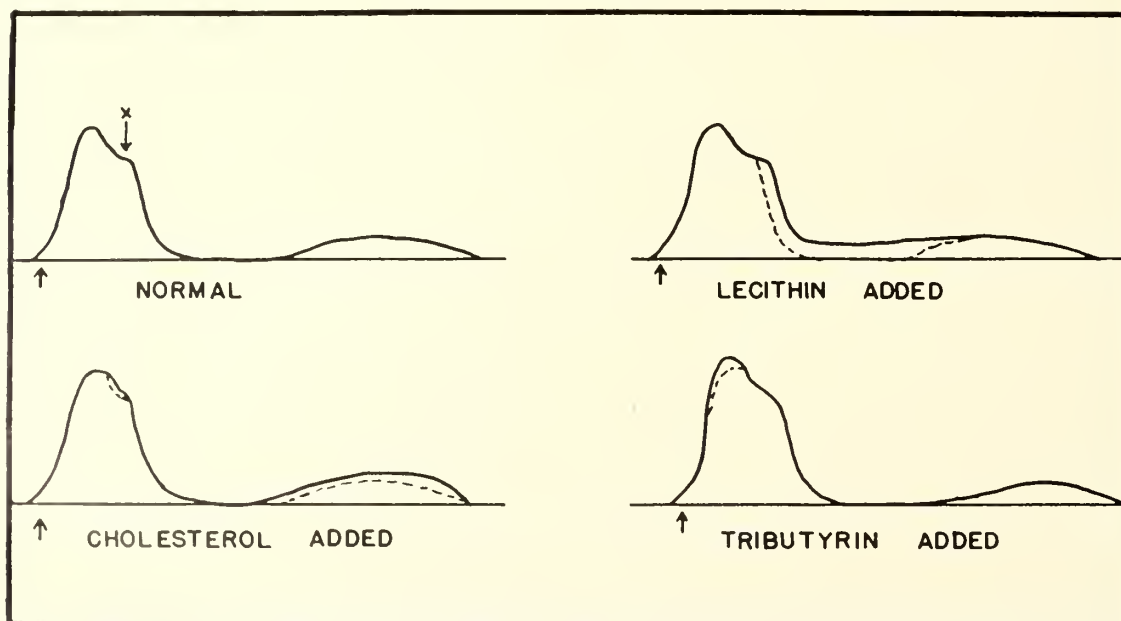


FIG. 1. Comparable patterns of lipoprotein showing the effect of lipids added *in vitro*.

since it is necessary to have a constant point of reference on the electrophoretic curves; and also it refers to the fractionation by Gofman<sup>2</sup> at S<sub>12</sub> to account for the possible greater atherogenic effect of larger lipoproteins.

A 1:50 dilution of lecithin (98% pure) and tributyrin (Fisher reagent), and a 1:16.7 dilution of cholesterol (CP) were made with serum and placed on the electrophoretic strips in the usual manner. Figure 1 shows comparable electrophoretic curves with the effect of these lipids added in vitro. Lecithin is representative of the phospholipids which take a location distal to "X." Cholesterol locates at "X" and in the alpha fraction. Tributyrin is an example of tryglycerides which locate proximal to "X."

The data were analyzed statistically by Dr. G. Eugene Albert, Professor of Mathematics, University of Tennessee. The evaluations were made with the chi-square technic and by the use of a "discriminatory function."

Results

Figure 2 shows a scatter graph of atherogenic indices of males with and without

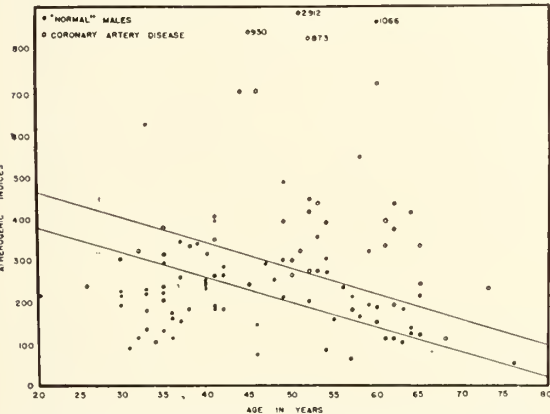


FIG. 2. Scatter graph relating atherogenic indices with age for males with and without coronary artery disease.

overt coronary artery disease. Both groups include many disease entities including hypertensive cardiovascular disease, obesity, and others which might have associated atherogenic disease. The designation "coronary artery disease" was limited to proven myocardial infarct and classical angina with objective indications of the disease. No cases on low fat or other diets for reduction of serum lipids were included in the study. The two lines separate what we have called "normal," "questionable" and "coronary artery disease" groups.

Application of the chi-square test of homogeneity to the data in Figure 2 which are separated by the two slanting lines shows the statistical significance of the separation

between "normal" and "coronary artery disease" groups.

	Low	High	Totals
"Normal"	38	26	64
"Coronary Artery Disease"	11	31	42
Totals	49	57	

High and low mean two different things in the two cases. Since we must take into account the "questionable" group between the two lines where no well defined separation exists, in the "normal," low means below the lower line, and in "coronary artery disease," low means below the upper line. The statistical quantity chi-square is 9.94. This is significantly large at the one per cent level and indicates that the separation between the two groups is not likely to have occurred by pure chance.

The slanting lines in Figure 2 were drawn visually, eliminating all "coronary artery disease" points from below the lower line. The construction of a "discriminatory function" affords a method of assessing the accurate position of these lines through statistical analysis of the data. We find the function

$$F = A.I. + 7.35 \text{ (age)}$$

which can be computed for any male. The lower line is calculated using the smallest value among the cases of 'coronary artery disease.' The upper line is calculated so that the "normals" above the lower line are divided into a small high and large lower group i.e. 10% and 90% respectively. The one data point A.I. = 2812 was deleted from the analysis to make the data statistically acceptable. The statistically calculated lines fall on and almost coincide with those drawn visually. Since the A.I. does not reach zero with advanced age, a more sophisticated statistical analysis of the data would be expected to make these lines part of a parabola which approaches the abscissa asymptotically.

An analysis of the "function" shows it to be quite discriminatory. The average value for "normals" is 553. The average value for "coronary artery disease" is 767. The standard error for the difference between these two averages is 33.9. For sensitive discrimination the difference between these averages should exceed three times the standard error for that difference. For our data this difference exceeds six times the standard error.

The data points in Figure 2 show a predominance of "normal" in the early age groups and a predominance of "coronary artery disease" in the older age groups. An additional very large study of the 40 to 55 year age group would be more critical to separate "coronary artery disease" and "normal" patients in the age range most important to the clinician.

Similar analyses were applied to the scatter graph of atherogenic indices for females with and without overt coronary artery disease. (Fig. 3). In view of the greater diffi-

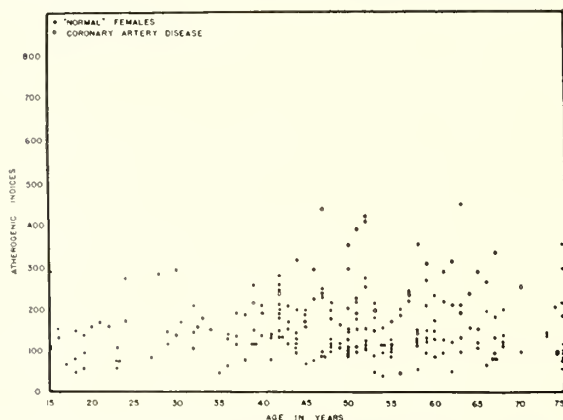


FIG. 3. Scatter graph relating atherogenic indices with age for females with and without coronary artery disease.

culty of diagnosis in women, each case used in the coronary artery disease group was reviewed and accepted by two cardiologists.

No significant trend could be recognized in Figure 3, and no statistical advantage could be calculated. In an attempt to find some correlation in the lipoprotein curve with coronary artery disease in females, specific functions were analyzed with special attention to the cholesterol area rather than the triglycerides area.

Plotting the total height of the curve at point X (about  $S_{r4}$ ) against the age in females produces the scatter graph with slanting lines of separation in Figure 4. The use of a "discriminatory function"  $F = (\text{height of point X in cm.}) + 0.17 X (\text{age})$  shows the average value for female "normals" to be 12.48, and the average value for female "coronary artery disease" to be 15.64. This difference is 3.6 times the standard error for that difference, and is statistically significant, but the use of this function does not seem to be satisfactory for individual diagnosis.

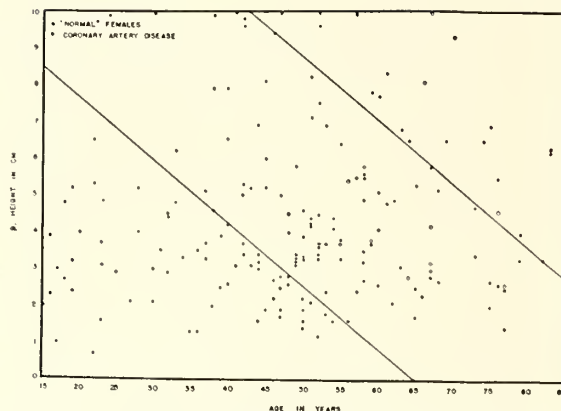


FIG. 4. Scatter graph relating the last plateau height of the beta lipoprotein curve with age for females with and without coronary artery disease.

Our margin of technical error has been regarded as much as 10%, but reproducible curves can usually be produced with considerably less than this.

Atherogenic indices have not been appreciably altered by the time of venepuncture as related to meals, although a severely hyperlipemic meal may elevate the atherogenic index several hours later. Heparin<sup>1</sup> and norepinephrine are two drugs which we have found to reduce markedly the atherogenic index, and such results must be regarded as invalid. Storage of serum specimens in the refrigerator has not been found to alter the atherogenic indices.

#### Discussion

A practical method for estimating the atherogenic index which can be adapted to the moderate-sized laboratory seems to have some specificity and reliability in coronary artery disease in males. This is indicated in Figure 2 as a diagnostic and predictive tool, and in Figure 3 as a technic to control therapy.

The triangular diagram produced by the interrupted line in Figure 2 indicates an increasing tendency to coronary artery disease in males as age progresses. With increase in age, these catastrophes occur with lower and lower atherogenic indices, suggesting that a prudent reduction should be made in the atherogenic index with increasing age.

Figure 5 displays the effect of low fat—unsaturated fat diets on persons with elevated atherogenic indices. Some of these patients have had myocardial infarcts and others have not. The individual patient's variation of degree in the declining atherogenic indices cannot be assessed since the



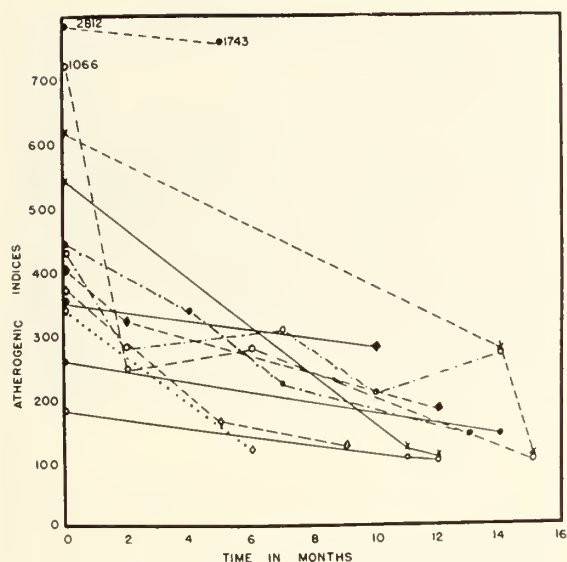


FIG. 5. Atherogenic indices plotted for patients on low fat diets.

diets were not comparable, being ordered and outlined by several clinicians. Possibly of even greater importance is the individual patient's cooperation, and it is the subjective impression of the author that the degree and rapidity of the index reduction bears a close relation to the austerity of the diet as a result of the patient's enthusiasm.

Serum cholesterol was determined<sup>5</sup> about the same time as the atherogenic indices in 36 of the persons evaluated in Figure 2. These have been plotted in Figure 6 to show

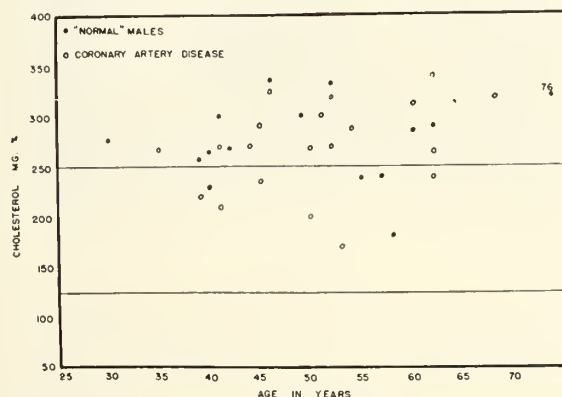


FIG. 6. Scatter graph relating cholesterol to age for males with and without coronary artery disease.

the relation to the normal level between 125 and 250 mg. per 100cc. No significant relationship is recognized.

Other factors than concentrations of serum lipoprotein must be considered in the prognostication of coronary artery disease. These as well as serum abnormalities may vary in all proportions in a specific individ-

ual. The slanting lines in Figure 2 probably indicate the effect of factors such as vascular disease, sedentary habitus, and the like, with increasing age. On the basis of the data in Figure 2, one speculation that can be considered is that atherogenic disease may be a sex-linked constitutional defect like diabetes mellitus. In the latter, the physiologic mechanism cannot handle sugars well; in the former, fats are not handled well. Like diabetes, atherogenic disease varies in degree and age of onset. A comparison may be seen between the young diabetic and the young male with a high atherogenic index. Such a case is the 33 year old man with an atherogenic index of 620 in Figure 2. In a young man an atherogenic index which is regarded as normal according to Figure 2, is abnormal several years later. This is probably due to the added effect of vascular degeneration, sedentary habitus with little change in diet, and possibly other factors. If this speculation is correct, and in the light of the lowered atherogenic indices in persons on low fat diet in Figure 5, it may be possible to minimize the danger of coronary artery disease in males by diet and/or lipolytic medication.

#### Summary

A simple electrophoretic method for doing atherogenic indices has been described. Its use in the evaluation of coronary artery disease with relation to prognostication and diagnosis has been discussed.

#### Acknowledgement

I wish to acknowledge with thanks the technical assistance of Mr. Allen Webb, and the cooperation of the clinicians in Knoxville, particularly Drs. R. B. Wood, Frank London, and J. E. Acker, Jr.

#### References

1. Swahn, B.: Studies on Blood Lipids. The Scandinavian Journal of Clinical and Laboratory Investigation. 5: Supplementum 9, 1953.
2. Gofman, J. W., Strisower, B., Della, C., Templin, A., Jones, H. B., and Lindgren, F.: Index of Coronary Artery Atherogenesis. Modern Medicine 21:2, 1953.
3. Kendall, M. G.: Advanced Theory of Statistics, Vol. 2, 2nd edition, London, Charles Griffin Co., Ltd., 1948, p. 341.
4. Engelberg, H.: The Prophylactic Management of Coronary Arteriosclerosis. Geriatrics 11:243, 1956.
5. Pearson, S., Stern, S., and McGavock, T. H.: A Rapid Accurate Method for the Determination of Total Cholesterol in Serum. Anal. Chem. 25:813, 1953.

## AN UNUSUAL CASE OF FETAL DEATH: A Slip-Knot of Membranes About the Cord

Carl Rogers, M.D., Shelbyville, Tenn.

On December 27, 1957, a 36 year old gravida iii, para ii was delivered spontaneously of a still-born female infant. A delivery 3 years previously had been complicated by a mild hypertension and moderate pedal edema with a 1+ albuminuria at times during the last trimester. This labor was prolonged. The child of this second pregnancy was normal except that it had one small ear that projected at right angles to the head. The other ear was normal in size and position.

The stillborn child of the present pregnancy was developed normally except for ears similar to those of its brother. The position was L.O.A. with vertex presentation. Labor lasted only 6 hours and was rather easy. No fetal heart sounds were heard on admission and the mother could recall no movement during the previous 72 hours but had suspected no trouble. She did recall some intensified movement 3 days prior to labor accompanied by a sudden loss of amniotic fluid but passed practically none afterward until the onset of labor and then not very much.

During labor a fairly large caput succedaneum presented itself and the bones of the skull were more subluxated than usual. The fetus was delivered easily spontaneously. It was moderately edematous with numerous blebs over the body and in some areas the skin had already slipped off. The estimated time of death was some 48 to 72 hours previously.

The cause of death was in the cord as shown in the photographs. During the expression of the placenta it was noted that there was a stricture of the cord some 4 inches from the placenta. The placental end appeared normal except for a definite paleness. Distal to the site of obstruction all the way to the umbilical attachment the cord was hemorrhagic, markedly edematous and friable. On closer inspection of the cord after returning the patient to her room the following lesion was found. A long strand like piece of the membranes which was firmly attached to the placenta at one end was wrapped twice around the cord and then tied in a definite slip knot with a

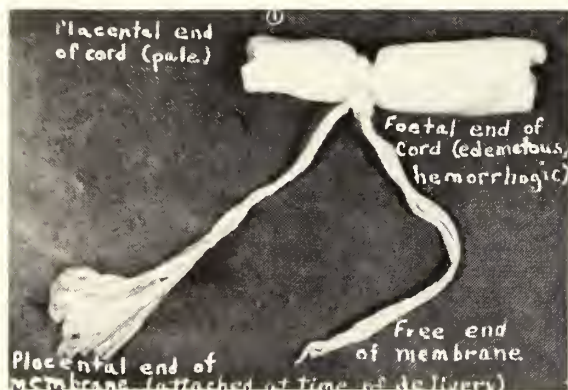


FIG. 1.

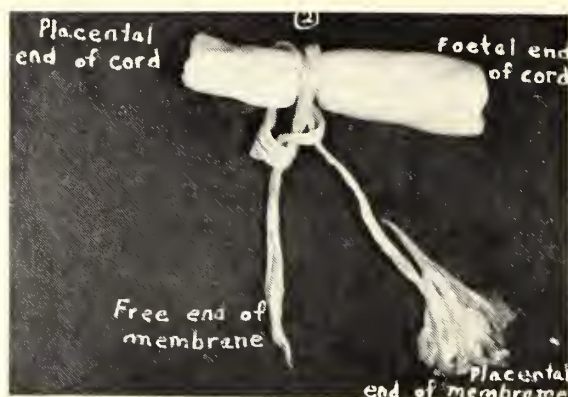


FIG. 2.

3 inch end hanging free. (Figs. 1 and 2.) Apparently when the membranes ruptured 3 days previously this strand of membrane had "whiplashed" itself twice around the cord and by some uneasy trick had tied itself into a knot which was drawn sufficiently tight to constrict the cord to one-fourth its normal size. (Fig. 3.)

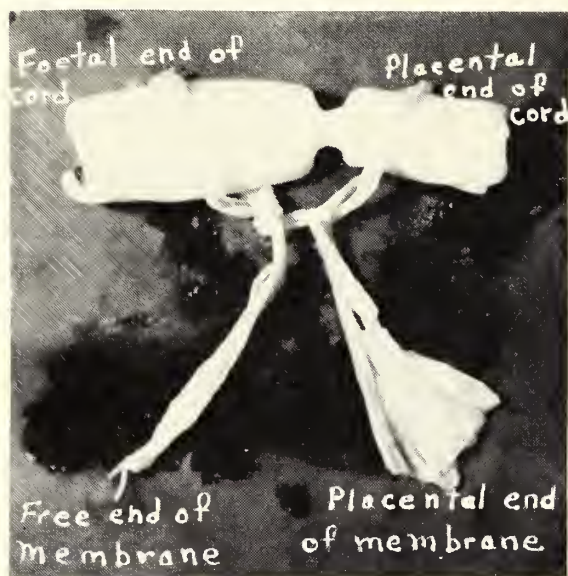


FIG. 3.

### Comment

Judging from the edematous condition of the child and the hemorrhagic and distended appearance of the cord, it is assumed that the venous return but not the arterial inflow of blood was sufficiently strangulated to cause the death of the child at the time she felt the exaggerated movements following rupture of the membranes 3 days prior to onset of labor.

The records have not been searched for the frequency of occurrence of this cause of obstruction to the fetal circulation, but I believe it must be a rather infrequent cause of fetal death.



That impairment in hepatic function occurs in some cases of thyrotoxicosis has been known for many years. This study uses bromsulphthalein retention for comparison with laboratory evidence of thyrotoxic hyperfunction.

# The Results of the Bromsulphthalein Excretion Test in Diseases of the Thyroid

EMMANUEL G. AVLONITIS, M.D.,\* Nashville, Tenn.

## Introduction

The purpose of this study was to investigate the incidence of liver damage, as reflected by the bromsulphthalein test, in patients suffering from thyroid diseases.

It is well known that the bromsulphthalein test reflects the excretory ability of the liver cell and is considered as one of the most sensitive indices of liver damage. One must, however, realize that no one test reflects liver damage *in toto*, but a disturbance of a function carried on by the liver only partially. The only exception to this seems to be the bromsulphthalein test (and the rose Bengal test), which is believed to reflect the excretory ability of the liver.

It is a well established fact that the thyroid gland through its hormone, thyroxine, affects the activity of other glands and especially plays an important role in the welfare of the liver. Kendall,<sup>7</sup> Blum and Gruntzner<sup>2</sup> and Zavadovsky and Perelmutter<sup>11</sup> demonstrated the importance of the liver in the decomposition and excretion of at least the iodine portion of the thyroxine molecule.

The anatomic changes in the liver in the presence of thyrotoxicosis have been reviewed by Weller,<sup>9</sup> Haban,<sup>6</sup> Beaver and Pemberton,<sup>1</sup> and Cameron and Karunatne.<sup>4</sup> Moderate hepatomegaly occurs in approximately 40% of patients with hyperthyroidism. The pathologic changes can be grouped into three main categories: (1) acute degenerative hepatic lesions in the form of marked fatty change and actual necrosis of

either focal or central type; (2) atrophy, local or general; and (3) cirrhosis.

Combinations of all three forms exist. Of the above lesions fatty changes are the most frequently met, and are found in approximately two-thirds or more of thyrotoxic patients. The consensus of opinion is that fatty accumulations in the liver are on the basis of true infiltration. When cirrhosis exists there is general atrophy with a decrease in the size and weight of the liver.

As regards the pathogenesis of the anatomic changes, experimental evidence supports the following conclusions:

(a) The feeding of excessive doses of thyroid gland greatly depletes the glycogen content of the liver.

(b) The liver plays an important role in the decomposition of thyroxine and in the excretion of its decomposition products.

(c) Experimental hyperthyroidism may result in pathologic changes in the liver, described as parenchymatous degeneration, and fatty degeneration or necrosis, usually most marked in the center of the lobule.

(d) A diet deficient in vitamin B complex may increase the degree of liver dysfunction of the thyrotoxic liver.

(e) Bacterial infections and toxins increase the susceptibility of the thyrotoxic liver to acute necrotic change.

The clinical features that may suggest hepatic dysfunction in a thyrotoxic patient are jaundice, hepatomegaly and thyroid crisis. Of these, hepatomegaly is by far the most frequent manifestation, the other two being infrequent and usually existing only in patients with a severe degree of thyrotoxicosis. In our series of 19 patients none had clinically evident jaundice.

Liver function tests sometimes reflect the existing liver dysfunction, and the concen-

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sus is that the galactose tolerance test is the most frequently impaired. One, however, may object that the impairment of galactose tolerance is partly due to other associated factors, and especially intestinal absorption, which is also reflected in the results of the glucose tolerance test in thyrotoxic patients. Of the other liver function tests it seems that the bromsulphthalein excretion is impaired more frequently than the rest of the tests, and the present study intends to investigate this specific test in thyroid diseases. Relatively little investigation has been done in this field. Maddock, Collier and Pedersen<sup>8</sup> found that of 13 patients with toxic goiter 8 showed evidence of liver damage before operation, as measured by an increase in serum bilirubin above 3 mg. per liter and above 10% bromsulphthalein dye retention. There appeared to be some correlation between the severity of hyperthyroidism, as measured by B.M.R., and the functional liver impairment. They reported that in the 5 patients with normal liver function tests the B.M.R. averaged 33%, as compared with an average of 54% for 8 patients with abnormal liver function tests. Youmans and Warfield<sup>10</sup> found abnormal BSP. retention in 22 of 44 patients with thyrotoxicosis, but there were no data for the broad metabolic values.

#### Technic and Results

The patient is fasting since the previous evening. Five ml. of blood are drawn from the antecubital vein, and through the same needle the calculated quantity of BSP.—5 mg. per kg. of body weight—is injected. The injection lasts 30 seconds, care being taken to give it at a constant rate. Blood is drawn from the opposite antecubital vein after 3 minutes from the beginning of the injection and the blood-drawing lasts also 30 seconds. Lastly, a third sample is drawn after 45 minutes.

Necessary precautions to avoid hemolysis (needles and syringes sterilized by dry heat, gentle transfer of blood from syringe to tube, and carefully cleansed and dried tubes) were taken. After one hour the clot was separated from the walls with a glass rod and the tubes centrifuged at 2,000 revolutions per minute for 10 to 15 minutes.

One ml. of serum from each sample is added to 5 ml. of 0.9% sodium chloride so-

lution and the whole is divided into two equal parts after mixing well. To the one of the two parts 0.1 ml. of a 5% sodium hydroxide solution is added to develop the color of the dye. The other part is not treated with any reagent and serves as a blank. All samples are then introduced in the spectrophotometer (Coleman Junior) at 580  $\mu$ .

Bromsulphthalein retention is calculated as follows:

$$K: 100 \frac{(K_3 - K_1)}{K_2 - K_1}$$

where: K = % retention of BSP. in serum

$K_1$  = deviation of sample No. 1 (prior to injection)

$K_2$  = deviation of sample No. 2 (3 min.)

$K_3$  = deviation of sample No. 3 (45 min.)

The values  $K_1$ ,  $K_2$ ,  $K_3$  are calculated by subtracting the deviation of the blank from that to which sodium hydroxide was added. The value  $K_2$  is estimated as 100%, as it was found that the BSP. serum or plasma concentration reaches a peak at this time.

From my own and published studies the upper limit of bromsulphthalein retention in 45 minutes was considered to be 6% of the injected dye.

On 19 patients studied BSP. retention up to 6% was found in 9, between 6 and 10% in 5, and more than 10% in the remaining 5. These patients suffered from hyperthyroidism with or without goiter or exophthalmos. These results are tabulated in detail in table 1 and are compared to the radioactive iodine uptake, B.M.R. and liver function tests, whenever available.

#### Discussion

*Bromsulphthalein Test and B.M.R.* On those patients who had a basal metabolic determination (10) a comparison with the results of the BSP. test shows that for group I (No. 1-9; BSP. 0-5.0%) no comparison was made, since in only 2 of the 9 patients was a B.M.R. done. For group II (No. 10-14; BSP. 0.1-10%), the average of B.M.R. value was +38.2. with extreme values of 26 and 44 percent. In group III (No. 15-19; BSP. above 10%), the average B.M.R. level was +45%, with extreme values of 44 and 46 percent. From these results there is some evidence of correlation between the two tests, but no definite conclusions can be drawn because of the rather small groups.

*Bromsulphthalein Test and Radioactive Iodine Uptake.* The radioactive iodine up-

Table 1

No.	Age	BSP. %	B.M.R. plus %	Highest I <sup>131</sup> Uptake Value %	Average I <sup>131</sup> Uptake Value %	Excretion of I <sup>131</sup> in 48 hrs. Urine %	Bili- rubin mg%	Choles- terol mg/1	T.S.P. Gm.%	Alb. GM.%	Ceph. Floc. in plus
1	51	0.0	—	71.5	64.8	5.1	—	—	—	—	—
2	45	2.0	13	67.0	63.5	9.1	—	—	—	—	—
3	68	3.0	—	49.5	35.0	27.0	—	—	—	—	—
4	57	3.0	31.5	56.0	37.0	16.3	—	—	—	—	0
5	58	3.0	—	71.0	61.6	12.3	0.4	164	—	—	0
6	45	3.5	—	50.7	43.1	36.5	—	—	—	—	—
7	28	4.0	—	67.0	55.4	7.6	0.3	158	—	—	—
8	44	5.0	—	51.0	44.9	22.8	—	—	—	—	—
9	52	5.0	—	84.5	75.1	4.2	—	—	—	—	—
10	46	6.0	26.0	84.8	77.4	9.4	—	195	7.44	4.44	1
11	35	7.5	40.0	78.5	69.0	12.3	0.3	—	7.2	4.7	—
12	58	8.0	40.0	70.0	66.5	10.7	—	225	7.2	4.8	—
13	57	9.0	41.0	69.0	67.1	9.2	—	—	—	—	—
14	55	10.0	44.0	72.0	69.9	4.3	—	210	7.32	4.47	—
15	47	10.5	33.0	78.4	72.4	14.4	—	237	5.6	3.8	—
16	45	11.0	—	69.7	63.0	10.0	—	—	—	—	—
17	52	12.0	44.0	81.2	76.7	3.6	0.8	120	4.8	3.32	11
18	30	13.0	46.0	79.3	70.4	4.8	2.0	175	6.7	3.3	0
19	50	20.0	—	83.5	76.0	1.1	—	—	—	—	—

take was performed on all 19 patients. Comparing the results of both tests, one sees, that the average of the highest uptake value for group I was 63.13%, for group II 72.0% and for group III 78.42%, and that the average uptake value (which was estimated by adding the values of all 4 determinations and dividing by 4) was 53.41%, 70.0%, and 71.73% respectively. To ascertain that this correlation existed, the patients were divided into 4 groups according to their highest uptake values, as follows: Group I, below 60.0%, group II, 60.1-70.0%, group III, 70.1-80.0%, and group IV, above 80 percent. They were also divided according to their average uptake values into group I, less than 50%, group II, 50.1-60.0%, group III, 60.1-70.0%, and group IV, above 70 percent.

From the average of the corresponding results of the BSP. test a marked correlation was found—i.e., for the groups of highest uptake values BSP. averages of 3.62, 6.8, 7.33, and 10.75% were found for groups I, II, III, and IV respectively.

A comparison of the BSP. results with the excretion of the radioactive iodine excreted in the urine during the first 48 hours showed that for group I the average of urinary ex-

cretion was 15.67% (4.26-36.5%), for group II 9.18% (4.3-12.3%), and for group III 6.8% (1.1-14.4). The mean values were 12.3, 9.4, and 4.84% respectively.

The patients were also divided into 4 groups according to the iodine excretion in the 48 hour urine,—i.e. group I from 0-10.0%, group II from 10.1-20.0%, group III from 20.1-30.0%, and group IV above 30 percent. The respective average of BSP. retention was 10.22%, 6.4%, 4.0%, and 3.5 percent. One may conclude from these comparisons that the BSP. test has a direct relationship to the radioactive iodine uptake, this relationship being evident in the various aspects of the test, and namely, the highest I<sup>131</sup> uptake, the average I<sup>131</sup> uptake, and the 48 hour I<sup>131</sup> excretion in the urine. These comparisons are tabulated in tables 2, 3, and 4.

Results of the bromsulphthalein were compared to other liver function tests whenever available, as in table 1. In most of the patients results of BSP. test and of other liver function tests were comparable. Only in 2 patients in whom the BSP. retention was considerable (12 and 13), a significant

Table 2

Group	Highest I <sup>131</sup> Uptake Value	No. of Patients	BSP. Percent	Average Value Percent	Mean Value Percent
I	Less 60.0	4	3-3-3.5-5	3.62	3.25
II	60.1-70.0	5	2-4-8-9-11	6.8	8.0
III	70.1-80.0	6	0-3-7.5-10-10.5-13	7.33	8.75
IV	Over 80.0	4	5-6-12-20	10.75	9.0

Table 3

Group	Average Value	No. Patients	BSP. in Percent	Average Percent	Mean Percent
I	Less than 50.0	4	3-3-3.5-5	3.62	3.25
II	50.1-60.0	1	4	4.0	—
III	60.1-70.0	8	0-2-3-7.5-8-9-10-11	6.31	7.75
IV	Over 70.0	6	5-6-10.5-12-13-20	11.08	11.25

Table 4

Group	Excretion in 48 hr. Urine	No. Patients	BSP. in Percent	Average Percent	Mean Percent
I	0-10.0	11	0-2-4-5-6-9-10-11-12-13-20	10.22	9.0
II	10.1-20.0	5	3-3-7.5-8-10.5	6.4	10.5
III	20.1-30.0	2	3-5	4.0	—
IV	Over 30	1	3.5	3.5	—

decrease of the serum albumin (below 3.4 Gm. per 100 ml.) was found.

The BSP. test gave abnormal values in 10 of 19 hyperthyroid patients, i.e. in 52.6%, and in 5 of them its value was over 10% (26.3%). I would, though, hesitate to consider these percentages as corresponding to reality because of the small group of patients, and no statistical analysis of a group comprising of less than 100 patients, as the above, should be attempted. It would be interesting to perform the BSP. test in conjunction with the other liver function tests in a sufficient number of hyperthyroid patients.

It is necessary to point out that the liver damage, as reflected by the BSP. and other liver function tests, does not correspond, according to the majority of investigators, to a cirrhotic liver but rather to a liver with fatty infiltration as indicated by liver biopsy studies.

*Hypothyroidism and other Diseases of the Thyroid.* Results of the bromsulphthalein test in patients suffering from diseases of the thyroid other than hyperthyroidism, are tabulated in table 5.

From these results there is some evidence

for probable hepatic involvement in the patient of case 2, who at the time of the test had been under treatment for more than 3 years. In the same patient hypertensive heart disease, well compensated, was present, and therefore no definite conclusion can be made as to the abnormal BSP. retention, which may have been due to circulatory factors (venous stasis). It would not be wise to draw any conclusions based on a small number of patients as the above.

### Summary

1. The bromsulphthalein test was performed in 19 patients with hyperthyroidism, in one with nontoxic goiter, in 3 with myxedema, and in 3 with carcinoma of the thyroid.

2. The technic used was a modification of the standard 5 mg./kg, 45 minute method, using a 3 minute sample as 100% value.

3. The results of BSP. test in 10 of 19 hyperthyroid patients were found to be abnormal, and the BSP. retention correlated well with the degree of severity of the disease, as measured by the radioactive iodine uptake, the excretion of  $I^{131}$  in the 48 hour urine and the basal metabolic rate.

Table 5

No.	Age	Diagnosis	BSP. in Percent	B.M.R.	Highest $I^{131}$ Uptake %	Average $I^{131}$ Uptake %	Urinary Excretion of $I^{131}$ in 48 hrs. %
1	28	Iodine deficiency goiter	1	—	71.0	54.25	24.3
2	57	Myxedema	7	—	4.8	3.93	41.5
3	50	Pituitary myxedema	3	—26	8.9	5.59	Lost
4	41	Pituitary myxedema	2	—12	7.55	4.04	68.2
5	23	Carcinoma	6	—	28.28	18.57	62.0
6	52	Carcinoma	3	—15	34.8	24.2	39.6
7	52	Carcinoma	5	—8	34.4	—	50.0



4. No definite conclusions were drawn from the small number of patients having other diseases of the thyroid gland.

#### Acknowledgements

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#### References

1. Beaver, D. C. and Pemberton, J. de J.: Pathologic Anatomy of Liver in Exophthalmic Goiter, *Ann. Int. Med.* 7:687, 1933.
2. Blum, F. and Gruntzner, R.: Studien zur Physiologie der Schilddrüse, *Ztschr. f. physiol. Chem.* 110:277, 1920.
3. Bockus, H. L.: *Gastroenterology* Philadelphia. W. B. Saunders Co., Vol 3, pp. 410-419, 1953.
4. Cameron, G. R. and Karunaratne, W. A. E.: Liver Changes in Exophthalmic Goitre, *J. Path. & Bact.* 41:267, 1953.
5. Foss, H. L., Hunt, H. F., and McMillan, R. M.: Pathogenesis of Crisis and Death in Hyperthyroidism, *J.A.M.A.* 113:1090, 1939.
6. Haban, G.: Leberveränderungen bei Experimentellen Hyperthyroidismus, *Beitr. path. Anat.* 95:573, 1935.
7. Kendall, E. C.: Physiologic Action of Thyroxin, *Endocrinology* 3:156, 1919.
8. Maddock, W. G., Collier, F. A., and Pedersen, S.: Thyroid Crisis: Its Relation to Liver Function and Adrenalin.
9. Weller, C. V.: Hepatic Pathology in Exophthalmic Goiter, *Ann. Int. Med.* 7:543, 1933.
10. Youmans, J. B. and Warfield, L. M.: Liver Injury in Thyrotoxicosis as Evidenced by Decreased Functional Efficiency, *Arch. Int. Med.* 37:1-17, 1926.
11. Zavadovsky, B. and Perelmutter, Z. M.: Weber das Schicksal der Thyroxins im Blute und in den Geweben der Hyperthyreoidisierten Hühner, *Arch. f. Entwicklungsmechn. d. Organ* 109:210, 1927.

#### THE CLINICAL SIGNIFICANCE OF A LUMP IN THE THROAT. G. Edward Tremble, A.M.A. *Arch. Otolaryng.* 70:157, 1959.

The sensation of a lump in the throat is a common complaint and is generally treated lightly, but to assume that it is purely functional without due examination in a given case is dangerous. The emotional lump in the throat is probably a spasm of the cricopharyngeus muscle, which is the lowermost portion of the m. constrictor pharyngis inferior and serves normally as the sphincter of the esophagus. The lump which moves up and down commonly represents the results of inflammation of the nasopharyngeal mucosa after influenza. The lump with aching is most often found in women and is associated with hypothyroidism. In the case presented, however, a lump that had been assumed at first to be functional in origin and later ascribed to chronic lingual tonsillitis, was ultimately found to be a squamous-cell carcinoma on the tongue at the level of the tip of the epiglottis. The discomfort connected with pharyngitis is not necessarily proportional to the extent of the pathological changes found on examination. The temptation to explain a lump in the throat as a form of neurosis should be resisted, and the physician should use all the means at his disposal to make a diagnosis and give appropriate treatment.

## STAFF CONFERENCE

### University of Tennessee\*

#### Surgical Treatment of Congenital Heart Disease

DR. HARWELL WILSON: Gentlemen, we will begin our rounds this afternoon with the presentation of two postoperative patients, both of whom have recently been operated upon because of cardiac defects. Dr. Julian Bramlett, will you present the first patient, please?

DR. JULIAN BRAMLETT: This first patient is a 3 year old white boy who was first admitted to this hospital July 6, 1959, with a history of presenting a feeding problem with underdevelopment, easy fatigability, but no cyanosis, since birth. He had a history of frequent bouts of constipation with associated fever of undetermined origin. No disease was found until approximately 2 months before admission when the family physician discovered a murmur. The child was referred to the cardiac clinic of this hospital for evaluation for possible congenital heart disease. The PMI was found to be in the 5th intercostal space inside the clavicular line. There was a slight precordial thrill. There was a soft grade III blowing systolic murmur heard at the base of the heart, best in the 2nd and 3rd intercostal spaces on the left, but also heard over the back and aortic regions. Also, a Grade II apical systolic murmur was heard and a split pulmonic second sound. The impression on physical examination was congenital heart disease, probably interatrial septal defect.

The laboratory findings were essentially negative. The examination of the chest by fluoroscopy revealed no cardiac abnormality. The EKG. revealed a first degree block, an incomplete right bundle-branch block, and a marked counterclockwise rotation of the heart. Cardiac catheterization was carried out on the 2nd day after admission. The catheter was introduced in the left greater saphenous vein, was passed through an atrioseptal defect and into the anomalous pulmonary venous drainage system. The arterial saturation of the right auricle and ventricle were increased. These findings were compatible with the physical findings of interatrial septal defect.

DR. WILSON: Dr. Ainger, would you comment further on the diagnostic studies which you carried out on this patient?

DR. LOREN AINGER: The physical findings I recorded were a soft regurgitant type murmur in the second left interspace, which started immediately after the first heart sound and extended to the second heart

sound. This murmur was soft and blowing in quality and associated with a split pulmonic second sound and this splitting was fixed with the phases of respiration. This was transmitted also into the upper back. At the apex I noted a mid-diastolic rumble, which is frequently heard in children with rather large left to right shunts. Other physical findings are quite characteristic of interatrial septal defect and when correlated with an electrocardiogram which shows the picture of incomplete right bundle-branch block almost makes the diagnosis for you. The purpose of catheterization was not to confirm the diagnosis but merely to search for additional defects, particularly anomalous pulmonary venous drainage which is very commonly associated with this defect. Fortunately, we were able to enter this vein during the cardiac catheterization and to warn the surgeon before hand that this vein was present. The cardiac catheterization findings were very typical of interatrial septal defect. A "jump-up" of over 2 volume per cent in oxygen content occurred between the superior vena cava and the high right atrium. All the pressures in the various cardiac chambers were normal, a finding which is usual in children with interatrial septal defect. We were, also, able to pass across the defect. On the basis of our physical findings, fluoroscopy and catheterization findings, surgery was recommended.

DR. WILSON: Dr. Pate, suppose you outline the operative procedure you carried out on this patient.

DR. JAMES PATE: The decision was made to do this patient under cardiopulmonary bypass even though there have been cases done by closed techniques or under hypothermia. We consider open-heart surgery with the pump as being the safest procedure and certainly one which would allow us to do a better repair. The patient was anesthetized with rectal Surital supplemented with nitrous oxide endotracheal anesthesia. A midline sternal splitting incision was made and the pericardium opened and explored. There was obviously an anomalous right superior pulmonary vein which entered the lower portion of the superior vena cava and the upper portion of the right atrium at the junction of the two.

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The patient was connected to the pump by the superior and inferior vena cava canulas through the right atrial appendage and by the left femoral artery. He was placed on cardiopulmonary by-pass pumping at a rate slightly in excess of  $2.3 \text{ L/M}^2$  of body area.

The right atrium was opened widely and the diagnosis confirmed. There was a moderate sized atrial septal defect situated superiorly and posteriorly and emptying into this general area was the anomalous pulmonary vein. It was apparent that the vein could not be shunted into the left atrium without attention to the superior vena cava itself. Accordingly, the superior cava was "compartmentalized" by transverse sutures to divide it into a double barrel lumen, the anterior of which transmitted the superior caval systemic flow, the posterior, the right upper and middle lobe pulmonary flow. Following this "compartmentalization" the anterior margin of the defect could be swung to the right and lateral to the orifice of the right superior pulmonary vein. This resulted in the superior pulmonary vein emptying into the left atrium as it should, and the caval blood emptying into the right atrium as it should. The heart was then closed and the patient was removed from cardiopulmonary by-pass. Total pump time was 32 minutes. There was no postoperative complication.

DR. WILSON: Dr. Allen, would you like to comment on some of the technical aspects of repair in cases of this type?

DR. ROBERT ALLEN: First, I think it is important to emphasize that these patients are certainly best corrected using total cardiopulmonary by-pass than by blind or closed procedure or under hypothermia. In the past, cases have been reported where the inferior vena cava has been shunted by accident into the left atrium or where pulmonary veins emptying into the right atrium have been missed and not corrected. It is frequent that these patients do not have a large atrial defect and that most of the shunt which is calculated at the time of catheterization is due indeed to the anomalous pulmonary drainage and not due to blood coming through the atrial defect. To correct the situation in these patients the septum has to be shifted anteriorly, or in a manner so that the pulmonary veins are

directed into the left atrium. Dr. Pate's "compartmentalization" of the superior vena cava is a very adequate method of correcting the situation where the veins drain into this most difficult area. Occasionally they empty so high that the vein actually has to be cut from the superior cava and anastomosed to another pulmonary vein lower down and then this entire situation is shunted to the left atrium. I think he should have a very excellent result with this patient.

DR. WILSON: We are delighted to have with us on our rounds this afternoon Dr. Ainger from the Pediatric Department and, also, Dr. Culbertson from the Medical Department. Dr. Culbertson, would you tell us in your opinion what the outlook is for these patients without surgery? Do you think that surgery is always indicated in such cases?

DR. JAMES CULBERTSON: Dr. Wilson, veins from one or both of the lungs may drain abnormally into the right atrium or into one of its tributaries. If all four pulmonary veins are involved in an anomaly of total pulmonary venous shunting through the right side of the heart, these veins usually empty into a common chamber which is provided by the left innominate vein, the normally placed right sided superior vena cava, a persistent left superior vena cava or sometimes into the right atrium itself. Partial anomalous venous drainage is far more common than total anomalous pulmonary venous drainage and usually involves one or both of the pulmonary veins from the right lung. These may open directly into the upper and lower portions of the right atrium itself through separate orifices or they may open into the portal vein, the azygos vein, the coronary sinus, a persistent left superior vena cava, the normally placed right superior vena cava or rarely into other veins. Although partial anomalous pulmonary venous drainage often occurs in association with atrial septal defect of the secundum type, it may occur also in the presence of an intact atrial septum. When this is the case, the anomalous venous drainage produces the same physiologic and clinical abnormalities as atrial septal defect alone. Because of the left to right shunt, there is a great increase



in the right ventricular stroke volume and the pulmonary arterial blood flow rate. From a hemodynamic standpoint the surgical closure of an atrial septal defect and transplantation of anomalous pulmonary veins is indicated when the shunt is so large as to cause progressive right ventricular enlargement. Reduction of the pulmonary arterial blood flow to a normal rate forestalls the secondary development of occlusive degenerative vascular changes in the pulmonary arterial tree. The outlook for robust health and long life without surgery is far from good.

DR. WILSON: I take it then, Dr. Culbertson, that you approve of the type of therapy which was carried out. I think the appearance of the patient today speaks for itself regarding the smooth postoperative course which we are glad to say this patient has had.

Let us move on to the next patient. Dr. Birdsong, would you present the patient in the next bed to us, please?

DR. SIDNEY BIRDSONG: The next patient to be presented is the case of a 6 year old boy who at the age of 2 years was found to have a heart murmur during a routine physical examination. According to the parents he was seen by a physician at that time who advised observation and he was not seen again until 3 years later when the murmur was picked up by a public health nurse when he was in kindergarten. He was then referred to Dr. Ainger who admitted him to the hospital for cardiac studies.

Reviewing this patient's history reveals no history of cyanosis but he had had occasional dyspnea on exertion. His development had been apparently normal and had always been able to participate in any of the activities of his comrades. His birth followed a normal delivery and there were no complications in the neonatal period. He had no past history of rheumatic fever. Physical examination revealed a blood pressure of 115/60, the pulse, 100, the temperature, 98, and the weight, 45 pounds. Examination of the head and neck revealed no significant abnormalities. The lungs were clear. Examination of the heart revealed a harsh Grade IV systolic ejection murmur, heard loudest over the 3rd and 4th intercostal spaces with radiation along the clavicle and into the base of the neck and over the entire precordium. There was a systolic thrill felt best at point of maximum intensity of the murmur. The pulmonic second sound was diminished. The liver and spleen were not palpable, all peripheral pulses were considered normal and there was no cyanosis of the nailbeds.

Admission laboratory data were within normal limits. X-ray examination of the chest revealed

minimal cardiac enlargement with an unremarkable contour. Vascularity of the lung fields was considered somewhat diminished. EKG. revealed evidence of right ventricular hypertrophy and strain. Cardiac catheterization studies revealed significant findings of an elevated right ventricular pressure of 90/-1 with a marked gradient across the pulmonary valve. Oxygen content studies failed to show any evidence of shunt. The final impression was that this child had a pure valvular pulmonic stenosis.

DR. WILSON: Thank you, Dr. Birdsong. Dr. Ainger, would you comment again on the diagnostic studies of this particular patient.

DR. AINGER: The electrocardiographic picture of right ventricular hypertrophy is very typical in cases of this sort and it is possible to correlate the interventricular pressure with the electrocardiogram so that you can usually estimate it within 10 to 15 mm.Hg. Also, if you have acute hearing there is splitting of the second sound in this defect. I should like to comment briefly on the physical findings in this case. Children with valvular pulmonic stenosis are usually well developed as a rule. His cardiac findings were in many respects typical of the condition and in some respects quite atypical. He did have the harsh systolic ejection type murmur which is commonly associated with valvular pulmonic stenosis with maximum intensity in the second left interspace. This murmur started after the first heart sound and ended before the second heart sound. The transmission was along the clavicle and the supracavicular space and along the vessels on the left side of the neck. This murmur, however, was transmitted more widely than the murmur usually heard in valvular pulmonic stenosis and extended along the lower left sternal border and had somewhat of a harsh quality which made us postulate that possibly there was a ventricular septal defect associated with his stenosis. In addition, the pulmonic second sound was widely split although diminished in intensity. It has been shown by phonocardiographic recordings that the splitting of the second sound can be correlated very closely with the intracardiac pressure. As was already stated there was no evidence of intracardiac shunt nor was there any evidence of peripheral arterial desaturation ruling out both left to right, and right to left shunts. There was a sys-

tolic gradient of 70 mm. Hg. across the pulmonary valve. Ordinarily, in the literature it is recommended that these patients condition not be corrected if the gradient is below 75 mm. Hg., but I feel this is substituting arithmetic for common sense. This boy already had an electrocardiographic picture of right ventricular strain. He also had some exercise intolerance and it was decided on the basis of his clinical picture rather than on the basis of the precise findings in catheterization that he should be subjected to surgical correction.

DR. WILSON: Thank you, Dr. Ainger. Dr. Pate, will you tell us about the surgery of the operation that you carried out on this patient?

DR. PATE: These patients, again, have been operated upon under closed technics and under hypothermia. However, it is felt that, due to the frequency of other anomalies and due to the fact that direct vision surgery is so much more certain and accurate than blind procedures, open-heart surgery would be desirable in this case. Again he was anesthetized with Surital and nitrous oxide and a midline sternal splitting incision was made. He was connected to the modified rotating disc pump oxygenator and pumped at a rate of approximately 2.3/L/M<sup>2</sup> of surface area. The heart was explored and no evidence of other anomalies was found. The pulmonary artery did not appear aneurysmal at the time of operation. Palpation of the right ventricle showed no thrill and no evidence of either a ventricular septal defect or infundibular pulmonary stenosis. The thrill had its maximum intensity at, and just above the pulmonary valve. The pulmonary artery was open for some 3 cm. right to the annulus of the valve. The valve was atypical in that rather than being thin, fragile, and cone-shaped it was a dense transverse membrane with a central orifice. The remnants of the commissural attachments to the artery were visible and, using these as a guide, three incisions were made through the valve structure. This changed the diameter of the lumen from about 3 mm. to a size which would easily admit the finger. The finger was passed into the interior of the heart to be certain that there was no infundibular pulmonary stenosis and none was found.

The pulmonary artery was then closed with two layers of No. 4 arterial silk. The patient was taken off cardiopulmonary bypass after about 14 minutes and 40 seconds, and the chest closed in anatomic layers. The postoperative course was exceptionally smooth, without complications.

DR. WILSON: Dr. Allen, would you care to comment on this particular patient?

DR. ALLEN: I would like to agree with Dr. Pate that direct vision pulmonic valvulotomy is much superior to any type of blind technic. I think the only indications for doing a blind pulmonic valvulotomy of the Brock type today is in very small infants a year of age or under, or in patients who have another anomaly which cannot be corrected at the time of open-heart surgery. At the same time, direct vision surgery under hypothermia has to be hurried, and if there is infundibular pulmonary stenosis it cannot honestly be adequately corrected. It is very difficult to evaluate the pulmonic valve and the pulmonic outflow tract by direct vision, without opening it, at the table. Having experience with some 50-odd pulmonary outflow tracts trying to evaluate them before they were opened, we were embarrassed that we were frequently wrong in our conception of what we would find. Probably the ideal age for patients to be operated on with this disease is somewhere around 7 years. I feel that some of these patients, if operated upon in the very early period, may have some degree of stenosis as they grow older.

DR. WILSON: Dr. Culbertson, would you like to continue the discussion?

DR. CULBERTSON: We have learned in recent years that there are all grades of pulmonic stenosis ranging from the very mild to the extremely severe. A few untreated patients with obstruction to blood flow through the right ventricle into the pulmonary artery may lead normal lives to past 50 or 60, or rarely even past 70 years, with mild lesions. On the contrary, the most severe ones may die within the first year of life if not treated surgically. The average age of death in untreated patients with isolated pulmonic stenosis tends to fall between 25 and 30 years. Therefore, a judgment for or against surgical treatment has to be made on each patient individually.

Any patient with isolated pulmonic stenosis who has had a bout of right ventricular decompensation because of this lesion ought to be offered operation. A patient who has definite symptoms of fatigue and exertional dyspnea and who shows definite electrocardiographic and X-ray evidence of right ventricular hypertrophy, especially if the right ventricular enlargement appears to be increasing, should have surgical treatment advised. I think there is little question about the desirability of operation if the right ventricular systolic pressure is higher than 100 mm. Hg. Conversely, I think that operation usually is not needed if the highest right ventricular pressure is lower than 50 mm. Hg. What zone of right ventricular systolic pressure constitutes the most rea-

sonable transition to a definite indication for operation still is an unresolved question. Finally, let me caution that if operation is postponed, progress examination should be made at 6 month intervals, because these patients sometimes undergo physiologic and clinical deterioration fairly rapidly when right ventricular decompensation occurs.

DR. WILSON: Thank you, Dr. Culbertson. I think all of us are delighted with the progress which these patients have shown since operation and I think that no field in medicine has shown the spectacular advances which we have seen demonstrated by the advances which have been made in the diagnosis and the treatment of cardiac lesions within the last few years.

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**THE SURGICAL CONSCIENCE. W. A. Altmeier, A.M.A. Arch. Surg. 79:167, 1959.**

Conscience in surgery means a strong sense of right and wrong, a willingness to help others, a feeling of compassion for the unfortunate, self-discipline, and a strong faith in the sanctity of God and man. It can be conditioned by education and experience. It depends not only on the surgeon's individual moral fiber and religious concepts, but also on his heritage of philosophical doctrines, his scientific and factual knowledge, and his judgment. It determines his conduct in many situations, such as the current difficulty with hospital-acquired infections, where temporary individual gains from the misuse of antibiotics may result in protracted trouble to a community. It compels the surgeon at times to resist popular demands and to have the moral courage to protest. It requires him to rise above the selfishness of small professional groups and to devote himself to the individual patient with gentleness, compassion, firmness, and resolution. Many of the current problems concerning the care of the sick are complicated, not solved, by rigid regulations and dictatorial authority. Their solution depends, rather, on a rebirth of the surgical conscience.



## CLINICOPATHOLOGIC CONFERENCE

### Methodist Hospital\*

#### Fibrocystic Disease of the Pancreas

This white female child was first seen in this hospital at the age of 7 months because of fever and severe cough of several days duration. Studies included X-ray films of the chest, which showed only "bronchial margin prominence," with no definite evidence of infection. Examination of material obtained by duodenal drainage showed no trypsin activity. After antibiotic and supportive therapy, she improved. Discharge diagnoses were: "Possible celiac disease. Pneumonitis."

Six months later, she was again admitted, with an interval history of continued cough, "asthmatic" breathing, anorexia, and weight loss. Laboratory findings, including X-ray studies, were similar to those of the previous admission. Response to treatment was fairly satisfactory.

During the third, fourth, and fifth years of life, however, there were repeated episodes of respiratory infection for which she was not hospitalized. When she was two and one-half years old, chest films showed "heavy markings of the bases . . . with increased strand densities radiating into the right lung field." She continued to be followed in the Pediatric Clinic, with chest films at intervals, and there was some gradual progression in the changes. Although small and underdeveloped, she had appeared to adjust fairly well to her respiratory difficulty.

At the age of 5 years, for the first time there was roentgenographic evidence of acute interstitial pneumonitis. Four months later acute but more extensive involvement was again evident, with changes in the lower lobe of the left lung and in the upper and middle lobes of the right lung.

At 6 years she was hospitalized for the third time with acute respiratory symptoms. Despite a good appetite, she weighed only 37 pounds. This time considerable fibrosis was apparent in the upper lobes and bases of the lungs, with superimposed bronchopneumonia. There was now a suggestion of right heart preponderance. She was discharged after a few days, but remained out of the hospital for only 2 weeks, then returned because of persistent fever. Usually there was elevation to temperature as high as 104° F. in the morning, with remission in the afternoon. Productive cough had continued. Following a hospital course of 12 days, she was discharged to be followed as an outpatient, to continue on antibiotics and pancreatin.

She was not heard from for 3 months. Then she was hospitalized for the fifth time, acutely ill. Between admissions, deterioration in her con-

dition had progressed. Now 6 years and 9 months old, she weighed 16 pounds. She was in marked respiratory distress, with retraction at the sternal notch; there was slight to moderate cyanosis of mucous membranes and skin. The digits showed prominent clubbing. The head, including ears, nose and throat, was normal. The trachea was in the midline; the thyroid gland was not palpable. Although expansion of the lungs was equal, there was some retraction of the intercostal spaces on inspiration. Rate and rhythm of the heart were normal; the pulmonic second sound was predominant. There were no murmurs. No enlargement of the liver was discernible and the spleen and kidneys were not felt; but abdominal examination was hampered by muscle guarding. The external genitalia were normal. Rectal and neurologic examinations also showed no abnormalities.

The urine was within normal limits. The PCV was 44%; WBC 22,400 with 60% segmented neutrophils, 14% bands, 14% lymphocytes, 11% monocytes, and 5% basophils, there was slight anisocytosis with occasional macrocytes. There was slight to moderate toxic granulation of neutrophils. A sedimentation rate was 39 mm. in one hour. Three days after admission, a serum amylase was 59.5 units. CO<sub>2</sub> was 26.6, chloride ion 92.0, potassium 4.8, and sodium 145.0 mEq/L. A throat culture yielded *Staphylococcus aureus*, coagulase positive, and sensitive to a wide range of antibiotics.

From the time of admission, the severity of her respiratory embarrassment required oxygen. Other treatment included antibiotics and vigorous supportive measures. Her condition continued poor. There were irregular temperature elevations as high as 101.6° F. During the last two days of life, this dropped to subnormal levels. Five days after admission she expired.

DR. J. A. ROTHSCILD: This is clearly the case of a child with chronic pulmonary insufficiency, evidenced by clubbing of the fingers, intermittent cyanosis, and dyspnea. This child apparently had numerous attacks of pneumonia, in addition to being chronically dyspneic. She presents a classical case of cystic fibrosis of the pancreas.

Before going any further, I want to mention that this entity is entirely different from celiac disease, which was the original tentative diagnosis. Celiac disease is a condition of the gastro-intestinal tract involving glycogen intolerance and characterized by gastro-intestinal symptoms. In both conditions, patients exhibit the classical triad of celiac syndrome. Beyond this point, the similarity ceases.

Fibrocystic disease involves pancreas, liver, sweat glands, salivary glands, and secretory glands of the bronchi. It is one

\*From the Department of Pathology, Methodist Hospital, Memphis, Tenn.

of the most common causes of cirrhosis of the liver in childhood. In addition to pancreatic insufficiency, a most distressing aspect is chronic pulmonary insufficiency. Bronchial secretions are thick, tenacious, and susceptible to infection. Bronchiectasis and emphysema follow. Later, there is fibrosis, commonly followed by cor pulmonale.

Ducts of the pancreas are obstructed by tenacious secretion, causing back pressure with destruction of acini. The same may happen in the liver.

Diagnosis is best made by the analysis of the chloride content of the sweat. A level above 70 milliequivalents per liter is virtually one hundred percent diagnostic of fibrocystic disease of the pancreas. This procedure is more reliable and less cumbersome than analysis of material obtained by duodenal drainage for trypsin. Determination of trypsin activity was of course carried out in this patient at least five years ago. I am not sure what quantitative technique is now being used in this laboratory for sweat chloride determination. As a screening test, the silver agar plate method is good.

There is no specific treatment for fibrocystic disease of the pancreas. The patient may be supported with large amounts of fat soluble vitamins, and creatin is sometimes used. Some individuals advocate prophylactic antibiotics, specifically the tetracycline group. Essentially, treatment consists of maintaining as good a state of nutrition and of general health as is possible; and management of pulmonary infection and insufficiency in the most appropriate manner.

DR. E. H. MABRY: These are chest films taken during the last twelve months of life. Aside from varying degrees of superimposed infection, they show a slow progression of fibrosis and emphysema. These children usually develop cor pulmonale. In this film, approximately six months before death, there is some fullness in the outflow tract of the right ventricle, suggesting preponderance of the right side of the heart. Bronchopneumonia is superimposed on fibrosis, especially in both upper lobes and bases. In the last films, five months before death, there is diffuse fibrosis in all lobes.

While the heart is not enlarged, there is definitely fullness of the pulmonary conus. These show a sequence: atelectasis, infection, bronchiectasis, and fibrosis.

DR. E. N. STEVENSON: I should like to ask whether anything is known of the neonatal period in this child.

DR. W. W. TRIBBY: No abnormality is mentioned. Presumably the history dates to a few days before the first admission, when she became acutely ill with the first of many respiratory infections.

DR. ROBIN MASON: Is it known whether this patient had a good appetite?

DR. TRIBBY: Between acute illnesses, she is said to have eaten very well. In spite of this fact, there was of course extreme emaciation at the time of the last admission.

DR. CECIL WARDE: Are there any new ideas as to what causes this disease?

DR. ROTHCHILD: The cause is still unknown. The condition appears to be genetically determined, as a recessive.

DR. WARDE: Are the kidneys ever primarily involved? That is, aside from secondary infection, do they ever show fibrocystic changes?

DR. ROTHCHILD: No. The changes, again, are in the pancreas, liver, sweat glands, and bronchial glands. The term mucoviscidosis, while descriptive, was based on the idea of an enzyme deficiency resulting in abnormally thick mucous secretions. Since the involvement of sweat glands and the derangement in sweat chloride have come to light, this term has been discarded. Fibrocystic disease or cystic fibrosis are once more the names favored.

DR. STEVENSON: I asked about the neonatal period in this child because in most severe cases the patients do not live this long. They develop meconium ileus and expire during the first few weeks of life. Evidently, mucous glands of the colon are affected and the inspissated secretions produce obstruction. This is a very difficult problem.

DR. ROTHCHILD'S DIAGNOSES: Cystic fibrosis of pancreas. Bronchiectasis with pulmonary fibrosis and chronic pulmonary insufficiency.

ANATOMIC DIAGNOSES: Fibrocystic disease of pancreas. Bronchiectasis. Bron-

chopneumonia with pleural effusions. Fibrosis of lungs. Emphysema of lungs. Hypertrophy of right ventricle. Fatty metamorphosis of liver. Emaciation, severe.

DR. GUILLERMO AYERDIS: The first gross illustration demonstrates spleen, duodenum, and pancreas. The spleen is moderately enlarged, due to hyperemia. The duodenum is of normal size, and shows the pancreas to be quite small. Some degree of fibrosis may be appreciated but, as is usual, the cysts in the pancreas are microscopic and they cannot be seen in this view. The second illustration is a gross photograph of heart and lungs. The trachea has been opened to show the thick, yellow mucus nearly occluding the lumen. In both unsectioned lungs there is emphysema, and small hemorrhages are scattered over the pleurae. The right atrium is dilated and there is considerable thickening of the wall of the right ventricle. The third view is of the sectioned lungs; bronchiectasis is massive and there is extensive bronchopneumonia with many small abscesses.

This photomicrograph, though not of this actual case, is nearly identical to the picture seen here; this is pancreas in advanced disease, with inspissated secretions in ducts. Involvement of the liver may proceed to the point of cirrhosis; in our case, however,

there is only some fatty change without fibrosis. The next microscopic view shows dilated bronchioles filled with purulent exudate; exudate also fills the adjacent alveoli. A final view, under higher power, shows a bronchus lined by squamous epithelium, replacing the usual columnar type. This change can be seen of course in inflammatory reactions independently of fibrocystic disease. In fibrocystic disease, however, malabsorption of Vitamin A is involved.

DR. TRIBBY: Since the projector is operating, I should like to show the actual slide of the pancreas from this case. As in the photomicrograph, there is obliteration of normal acinar structure by fibrous tissue, although a few islets can be recognized. Everywhere, there are widely dilated ducts, and these are filled by secretions.

ERNEST M. NOBLITT, M.S.: Dr. Rothschild brought up a question about technic of the determination of sweat chloride and this has still not been answered. This laboratory uses the same microtechnic as City of Memphis Hospitals Laboratories.

DR. MASON: The Annals of Internal Medicine for either May or June of this year carries an interesting editorial on fibrocystic disease of the pancreas. I recommend it to those of you who have not read it.



## President's Page



HARMON L. MONROE

Every doctor in Tennessee should be familiar with the recent action of the House of Delegates wherein there was established a new committee with far-reaching effect and responsibilities. This is "The Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans." As set forth by the House of Delegates, the duties of the committee shall be as follows: (1) Consultation in matters pertaining to costs as they relate to the distribution of services provided by voluntary insurance plans. (2) To maintain a continuing appraisal of the quality of medical care as it relates to such costs. (3) To maintain continuing liaison with appropriate legislative bodies which may establish proper laws for effective en-

forcement of these goals which lie in the public interest. (4) To maintain continuing liaison with purveyors of prepaid medical insurance, inviting a free exchange of information and ideas. (5) To report findings to the Council where disciplinary action seems indicated. (6) To study and devise better means of providing preventive medical measures to the public. (7) To appoint sub-committees to implement special phases of the broad purposes of the committee.

As pointed out by the Board of Trustees, "The Tennessee State Medical Association recognizes that the voluntary prepaid health insurance program is a vitally necessary means of enabling families to provide for their medical and hospital costs." At the same time, it is recognized that unnecessary hospitalization, unnecessary surgical and medical procedures, and other abuses contribute to the increasing cost of prepaid health insurance. Such insurance cannot afford to have itself priced out of the market.

The doctor, the hospital and the public are responsible for the successful implementation of the voluntary health insurance system. If and when this newly established committee discovers that any physician is contributing to the abuse of the insurance system, it should recommend to the council that appropriate disciplinary action be taken.

The formation of the Consultative Committee on Administration of Voluntary Prepaid Medical Care Plans is a positive answer to those critics of medicine who accuse us of ignoring the best interest of the public. The formation of the committee and the work that it has been directed to perform, should establish that organized medicine is not only capable but willing to take the necessary steps to safeguard the voluntary health insurance program.

The committee has already held two meetings and has considered several documented complaints from the insurance industry. Abuses have been found and appropriate action recommended.

In this time of threatened government control of medical care, the Tennessee State Medical Association can take heart in the fact that when the Consultative Committee notified Tennessee members of Congress that the Association had established a committee to study abuses and outlined the work that would be performed, our congressmen were most generous in their comments for this type of work.

We must not relax. Tennessee physicians should study carefully the above seven duties of the Consultative Committee.

The socio-economic aspects of the practice of medicine have become extremely complex in this day and age, and certainly the work conducted by the Consultative Committee on Administration of Prepaid Medical Care Plans will go a long way toward helping to solve some of the economics involving insurance and medicine.

*H. L. Monroe, M.D.*

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OCTOBER, 1959

## EDITORIAL

### ADVISERS ON RADIATION

Ionizing radiation consists of electromagnetic waves or material particles that have sufficient energy to ionize atoms or molecules (that is to remove electrons from them), thereby radically modifying their chemical behavior. The molecules most sensitive to this action are those involved in the structure and function of living matter.<sup>1</sup>

Mankind has always been bombarded by ionizing radiation. This radiation has come from radioactive atoms occurring naturally in rock, soil, water and air which then have become incorporated in the tissues of living things. The intensity of radiation has been relatively low on this earth and the high level of ionizing radiation from the sun and stars has been filtered out effectively by that wonderful protective blanket—the

earth's atmosphere. Were it not for this shield, life could not go on.

With the turn of this past century the amount of ionizing radiation on earth has been markedly increased. The medical use of X-rays which has done so much to prolong life has increased the average exposure of much of the world's population to as much as 100% above the natural-background rate. Fallout from the testing of nuclear weapons has created problems which are puzzling the world's leaders today. Nuclear power plants which will increase in number produce huge quantities of radioactive materials, the containment and dispersal of which raise serious technical difficulties.

Men are concerned with the appalling problems due to the increase in ionizing radiation on earth as well as the hazards which stand in the way of future space travelers. Man being a thinking and moral creature concerns himself also with the effects of this increased radiation on generations yet unborn. Obviously to employ such radiation wisely and safely men must know more about it.

Our educational system has not provided and cannot be expected to provide a sufficient number of scientists to guide public opinion in each community so that intelligent decisions will be made about radiation, nuclear detection, fallout, strontium-90, and the like. In almost every village, town and city there is one individual who has some experience with radiation or knowledge about it. With this individual's background and intellectual capacity he has the potential to lead the citizenry in considerations regarding ionizing radiation.

Such an individual is the PRIVATE PHYSICIAN. We believe that the American Medical Association should accumulate data about ionizing radiation and make this information available both in conferences and in easy-to-understand publications so physicians can become better trained in providing civic leadership. In attempting to help humanity what more important service can medicine provide?

Every physician should be intellectually equipped and trained to guide his community in considering the multitudinous problems regarding ionizing radiation now, and

<sup>1</sup>Ionizing Radiation, Scientific American 201:73, 1959.



those which will confront us in the future. This should be our goal.

A. B. S.



## A DECADE OF THE BRITISH HEALTH SERVICE

With the spectre of the Forand Bill and the inevitable which will follow once the dike is breached, a look at the British Health Service after a decade may be of interest.

Much has been written in the American lay and medical press since the establishment of the Service on July 5, 1948. As they must in such a controversial issue all accounts have had unquestioned bias. The bias is the more difficult to unravel because of the many intangibles involved in the fundamentals of medical care, and especially *good* medical care, of which only the rarest of laymen can appreciate the implications. This is said advisedly after repeated failures to create an understanding of the intangibles involved in *good* medical care and their premise on patient-physician relationship in discussions with businessmen, professional men and even with teachers in medical schools.

A professor of economics of one of our prominent universities reported his study of the British Health Service in the *New England Medical Journal*.<sup>1</sup> This was answered shortly by a British physician residing in this country.<sup>2</sup>

With an economist's practiced efficiency he details the cold figures and facts. As per the *General Practitioners' Handbook* it is clearly set forth that the patient may choose his doctor or change doctors, and the doctor may lop off patients from his list at will. (This economist found that 50% of the patients interviewed had changed doctors, but only 15% of these because of "dissatisfaction" with the doctor.) Every person in Great Britain has a doctor, which was not true in the days before 1948. Now all receive not only attention from the general practitioner on whose list they appear, but also are eligible for consultation with a specialist and his treatment, hospitalization, the

cost of drugs, appliances, nursing attention, dental care, dentures, glasses, etc. (Token contributions by patients, because of deficit financing, have been added from time to time toward certain costs as well as payroll deductions and levies against the employer.)

More than 95% of the 50,000,000 people of the country have joined the Service as patients; so too, 95% of general practitioners and consultant-specialists, and 97% of dentists have joined the Service on a full-time or part-time basis. Oculists, druggists and nurses are in the program. The 36 teaching hospitals and 2681 nonteaching hospitals are part of the Service,—a total of 507,000 beds. About 80 % of the Service doctors have private patients, the majority having fewer than 40, and almost none as many as 100; the private patient must pay all the costs of his illness. The economist says the private patients consist of, (1) those who wish the attendant prestige, (2) business and professional men who wish to save time by appointments, (3) patients preferring greater privacy, and (4) elderly patients who do not wish "*to disturb a pleasant doctor-patient relation of long standing. . .*" (Italics by the Editor.) The doctor receives an annual "capitation fee" from the government for each patient on his list,—average 2300 (maximum permitted 3500). The doctor is free to accept paid appointments with insurance companies, industry and the like. A life annuity for the doctor upon retirement is contributed to by 6% of his current income matched by 8% from the Government. These are the facts. (Doctors' incomes though of interest are best disregarded because of different standards of living and income as in our terms and might becloud the issues.)

Then our presumably analytical economist gets into the field of questions, and subjective answers. Questions were posed to doctors and to patients. The patient-sample was 600 out of the approximately 47,500,000 people enrolled in the service. One would not question an economist's statistically representative sample! But the reader would like to know what groups were represented by the 600,—were they persons who never were able to afford a private physician and were they in proper statistical relationship to those who did have

1. Gemmill, Paul F.: The British Health Service Today, *New England Med. J.* 259:19, 1958.

2. Laing, John T.: Malnutrition of the Medical Soul, *New England Med. J.* 259:915, 1958.



private doctors. So too one would like to know the size of the physician-sample, was it of the same proportionate order as for patients (600 patients to 47,500,000). Among the doctors who gave the quoted answers,—were they general practitioners, consultant-specialists or full-time teachers! The questions asked, and answered by patients were related to,—(a) waiting time in doctor's offices, (b) "better or worse" medical care than before 1948, and (c) appraisal of home treatment of those chronically ill. Physicians were queried as to whether (a) adequate medical care was possible under the Service plan, (b) prompt hospitalization was possible when really needed and (c) the general practitioner believed medical needs were better met than before July, 1958. On paper, without qualification and lacking the desired statistical information mentioned above, the answers were in favor of the British Health Service.

The British doctor's answer to the economist<sup>2</sup> deals with the intangibles which cannot be put on IBM cards and which only a doctor, and especially one who has done "contract" practice and been at the "mercy" of patients, can understand. Thus, the patients whose medical attention is "free" crowd the waiting rooms, demand consultations (since the general practitioner has no access to modern instruments of diagnosis), hospital attention, drugs, glasses, dentures, and what not. The impractical idealist probably approves this, and so does the average layman since attention is provided to all on an equal basis, but only the doctor knows that *quality medicine* has given way to *quantity medicine*. The irritation of petty complaints, the unneeded house calls, the demand for consultations and hospitalization, the inability to study and follow the patient's disease almost certainly can result in only one thing,—shoddy medicine. As in every field of human endeavor there is a limit to the amount of frustration and annoyance one can accept,—no matter how idealistic the doctor may have been, the final answer is,—give a prescription to get rid of the petty compainer, and "pass-the-buck" to the consultant who has the gadgets and hospital since, when he is swamped he can mechanize medicine still further by putting the burden on the technician and

radiologist, and tabulate the reports for the doctor at home and thus avoid thoughtful consultation!

This English physician sums up the family physician's position after 8 years of personal experience: "The doctor in general practice has little or no incentive, takes little active part in diagnosis or treatment and cannot follow the patient in the hospital. His medical soul is suffering from malnutrition—from starvation. He has become a civil-service signpost pointing the way to the various departments such as gynecology, surgery and internal medicine. A fountain pen and a thermometer are his tools. He is surrounded by forms to fill and full waiting rooms, with long lists of house calls, many unnecessary; he is literally blackmailed by the patients, who know their power. . . ."

No matter the cry of bias, more often than not this has been the story of the British doctor your editor has queried in private conversation, here and abroad, much softened, to be sure, in the instance of the consultant-specialist who has a good berth in the teaching hospital. So too the story is filled in by conversation with the London cabbie, the hotel doorman, maid and concierge.

And what have we learned from this old story? Little with which to convince the layman. Unknown to him the patients receiving "free medical attention" will pay heavily in *quality* of care, and the politician and labor leader, if knowing, do not care.

R. H. K.

## DEATHS

**Dr. Sterling A. Batte, Jr.**, 39, Gallatin, died September 4th of a heart attack.

**Dr. J. G. Waldrop**, 74, Chapel Hill, died as the result of a heart attack at Lewisburg. His death occurred on September 9th.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Bradley County Medical Society

The Society met on the evening of September 8th at the home of Dr. W. C. Stanberry. The program consisted of a talk, entitled "The Doctor's Responsibility to His

Patient," by Mr. Charles L. Cornelius, Sr., Attorney for the Tennessee State Medical Association. Mr. Cornelius was introduced by J. E. Ballentine, TSMA Executive Director. An interesting question and answer session followed the address. A large number of the society members were present for the dinner meeting.

### **Memphis-Shelby County Medical Society**

The Society held its regular meeting on the evening of August 4th at the Institute of Pathology. The scientific program consisted of a symposium on pyelonephritis of which Dr. Raymond F. Mayer was the Moderator. Participating in the discussion were Drs. Howell D. Woodson, James W. Culbertson and Albert W. Biggs. The discussion was followed by a question and answer period.

On September 2nd, at the King Cotton Hotel, members of the Memphis-Shelby County Medical Society met jointly with the Memphis and Shelby County Bar Association. "Medical Thespians" was the subject of a skit presented at the meeting.

### **Knoxville Academy of Medicine**

The Society held its regular monthly meeting on September 8th in the Academy of Medicine building. The scientific program consisted of a paper entitled "Erythroblastosis Fetalis" presented by Dr. Hammond Pride and discussed by Dr. J. Vivian Gibbs.

### **Chattanooga-Hamilton County Medical Society**

The Society had its annual president's dinner at the Fairyland Club. The speaker was Dr. John H. Burkhart, Knoxville, vice-president of TSMA. Dr. Burkhart spoke on the "Benefits of Organized Medicine." Dr. Carl Hartung, retiring president was host.

A highlight of the meeting was the presentation of fifty year pins to several members of the society. Those receiving pins were Drs. Stanton H. Barrett, Edward E. Reisman, Hiram A. Laws, Leopold Shumacker and John B. Steele.

### **Anderson-Campbell County Medical Society**

Dr. Wayne Rogers of Portland, Oregon,

spoke at the August dinner meeting of the society, held at the Park Hotel in Clinton. Dr. Rogers' talk was on diabetes.

### **Roane County Medical Society**

The Society met in the dining room of the Oak Ridge Hospital on September 29th. Dr. Norbert J. Roberts, Assistant Medical Director of Standard Oil Company of New Jersey, was the speaker. His subject was "The Value and Limitations of Periodic Health Examinations."

### **Nashville Academy of Medicine and Davidson County Medical Society**

The Society opened its fall program on September 8th with a dinner meeting at Baptist Hospital. The scientific program consisted of a panel discussion entitled "Hospital-Physician Relationships." The discussions were given by Dr. Addison B. Scoville, Jr., Mr. Doke Cage, Dr. Richard Cannon and Mr. Gene Kidd. Mr. Cage represented St. Thomas Hospital, Dr. Cannon the Vanderbilt Hospital and Mr. Kidd the Baptist Hospital.

Bed shortages, personnel training and supply, insurance, costs and similar pertinent problems confronting physicians and hospitals were discussed.

## **NATIONAL NEWS**

### **(From AMA Washington Office) The Month In Washington**

Congress this year failed to take final action on any legislation of major interest to the medical profession except for the annual appropriation for medical research.

However, work was started on three measures of particular concern to physicians—the Forand, Keogh-Simpson and international health research bills. Showdown votes on them are probable next year. If they are not voted upon next year, they will die and must be reintroduced in 1961 if they are to be considered further by Congress.

The House Ways and Means Committee held hearings on the Forand bill, but deferred showdown voting on it until next year. The legislation—which is vigorously opposed by the medical profession, other



groups on the health team and the Eisenhower Administration—would provide hospital, surgical and nursing home care for federal Social Security beneficiaries. Social Security taxes would be raised to help finance the expensive program.

The Keogh-Simpson bill, after being approved by the House, was left hanging in the Senate Finance Committee. The Senate Committee held two sets of hearings. It could vote early next year on the legislation which would grant income tax deferrals to physicians and other self-employed persons as an incentive to invest in private pension plans.

Chairman Oren Harris (D., Ark.) postponed until next session a vote by the House Commerce Committee on the Senate-approved international medical research bill because of a backlog of more urgent measures requiring committee action this year. He said that "a diligent effort" would be made during the recess to clarify a number of points at issue revealed in testimony before his committee.

The bill calls for an annual \$50 million authorization to finance a new national institute of health to foster international medical research programs and cooperation. The Administration opposes some of its provisions.

President Eisenhower and Arthur S. Flemming, Secretary of Health, Education and Welfare, made clear that they did not feel bound to spend the additional \$106 million which Congress voted for medical research. Congress raised the \$294 million requested by the President to \$400 million.

Mr. Eisenhower expressed concern that Congress is going too fast in providing medical research funds which are administered by the National Institutes of Health. He warned of a danger that the quality of research projects might be lowered and that manpower and other resources might be diverted from "equally vital teaching and medical practice."

He directed that every project approved must be "of such great promise that its deferment would be likely to delay progress in medical discovery."

Secretary Flemming said that the President's criteria would be followed conscientiously. But the Secretary gave assurance

that the restrictions would not be so rigid as to hamper research by denying funds for worthwhile projects.

One of the most important and surprising developments during this session of Congress was the political power shown by Mr. Eisenhower, a lame-duck Republican president, in generally calling the shots on legislation although Democrats controlled the House and Senate with substantial majorities.

In his fight against "big spending" measures sponsored by Democrats, the President effectively used his veto power to get the bills more to his liking. The Democrats were unable to muster the votes to override vetoes of two housing bills.

A third compromise housing bill retained three provisions of interest to the medical profession. One would provide Federal Housing Administration loan guarantees for building proprietary nursing homes. A second would provide FHA loan guarantees and direct loans for housing for elderly persons. The third would authorize loans for construction of housing for interns and nurses.



Officers in charge of the Medicare program for military dependents were optimistic that certain medical benefits dropped for economy reasons in October, 1958, will be restored next January 1. But the professional director of the program, Col. Norman E. Peatfield, said that the Medicare permit system will be retained.

## MEDICAL NEWS IN TENNESSEE

### Nursing Homes

Doctors throughout Tennessee are frequently requested by their patients to recommend nursing homes in their localities to which persons requiring care by such homes can be admitted. The following list of licensed nursing homes in Tennessee, by counties, has been supplied by the Tennessee Department of Public Health and is published for the information of members of TSMA.

While no attempt is made to grade any of the homes listed, it can be stated that, in



obtaining licensure, these homes have demonstrated that they comply with the minimum requirements and standards as set forth by the Tennessee Department of Public Health. The following information is based on a list compiled by the Tennessee Department of Public Health dated September, 1959. Requests for information concerning any homes which may have been licensed after this date should be sent to the Commissioner, Tennessee Department of Public Health, Cordell Hull Bldg., Nashville.

#### **Bledsoe**

Farmer Rest Home, Pikeville

#### **Blount**

Davis Rest Home, Friendsville  
Joyce's Rest Home, Aleoa  
Leon's Nursing Home, Mentor  
Montvale Nursing Home, Maryville

#### **Bradley**

Bradley County Nursing Home, Cleveland

#### **Cumberland**

Carney's Nursing Home, Crossville  
May Carvath Wharton Home, Pleasant Hill

#### **Davidson**

Agee Nursing Home, Nashville  
Bennett Nursing Home, Nashville  
Betty Ann Nursing Home, Nashville  
Biggers Nursing Home, Nashville  
Centennial Nursing Home, Nashville  
College View Nursing Home, Nashville  
Davis Nursing Home, Nashville  
Edgefield Nursing Home, Nashville  
Graee Nursing Home, Nashville  
Harris Nursing Home, Nashville  
Highland Manor Nursing Home, Nashville  
Hillcrest Rest Home, Nashville  
Jenkins Nursing Home, Nashville  
Johnson's Nursing Home, Nashville  
Joywood Nursing Home, Nashville  
Mid-State Nursing Home, Nashville  
Newbern-Frazier Convalescent Home, Nashville  
Parsons' Nursing Home, Nashville  
Resthaven Convalescent Home, Nashville  
Snyder's Convalescent and Nursing Home, Nashville  
Stiddum Nursing Home, Nashville  
Sunny View Rest Home, Nashville  
Sunshine Nursing Home, Nashville  
Trimble and Rountree Nursing Home, Nashville  
Williams Nursing Home, Nashville

#### **Dickson**

Marion Wyburn's Nursing Home, Dickson

#### **Dyer**

Gourley's Nursing Home, Dyersburg

#### **Gibson**

Butler's Rest Home, Milan

#### **Grundy**

Cumberland Mt. Rest Home, Inc., Coalmont  
The Wren's Nest, Monteagle

#### **Hamblen**

Morristown Convalescent and Nursing Home, Morristown

#### **Hamilton**

Alexian Bros. of Signal Mt., Tenn., Inc., Signal Mountain  
Davis Nursing Home, Chattanooga  
Dempsey Rest Home, Chattanooga  
Ford Rest Home, Chattanooga  
McConnel's Nursing Home, Chattanooga  
Mountain View Rest Home, Chattanooga  
Mountain View Sanitarium, Chattanooga  
Ridge Manor Nursing Home, Chattanooga

#### **Hardeman**

Brint Sanitarium, Inc., Bolivar

#### **Hardin**

Clara Ellis Hays Home, Olive Hill

#### **Henry**

Puryear Nursing Home, Puryear

#### **Humphreys**

City View Nursing Home, McEwen

#### **Knox**

Anderson Nursing Home, Knoxville  
Hill Crest Rest Home, Knoxville  
Delia Jeffries Rest Haven, Knoxville  
Hodges Nursing Home, Knoxville  
Jennings Rest Home, Knoxville  
Kay Nursing Home, Knoxville  
Lane's Convalescent Home, Knoxville  
Naveh Convalescent Home, Knoxville  
Prosser Hill Retreat, Knoxville  
Rains Convalescent Home, Knoxville  
Seott Convalescent Home, Knoxville  
Shady Grove Convalescent Home, Knoxville  
Annie J. Smith Rest Home, Knoxville  
Weeks Rest Home, Knoxville  
West Haven Nursing Home, Knoxville  
Willis Convalescent Home, Knoxville

#### **Madison**

Colonial Convalescent Home, Jackson

#### **Marshall**

Umble Nursing Home, Lewisburg

#### **Maurry**

Fairmont Rest Home, Columbia  
Kozi Rest Haven, Columbia  
Paul's Rest Home, Mt. Pleasant  
Tucker's Rest Home, Columbia

#### **Montgomery**

Clarksville Nursing Home, Inc., Clarksville  
Queen City Nursing Home, Inc., Clarksville

#### **Putnam**

Masters Rest Home, Cookeville

**Rutherford**

Dillon Nursing Home, Murfreesboro  
Hoover Rest Home, Murfreesboro  
Mallard Nursing Home, Murfreesboro  
Murfreesboro Nursing Home, Murfreesboro

**Shelby**

Adler Nursing Home, Memphis  
Bone Nursing Home, Memphis  
Cage Nursing Home, Memphis  
Crippled Children's Hospital School, Memphis  
Hugh Coleman Nursing Home, Memphis  
Lamar McLean Nursing Home, Memphis  
Mary Coleman Nursing Home, Memphis  
Memphis Convalescent Home, Memphis  
Mustin Nursing Home, Memphis  
Neff-Key Convalescent Home, Memphis  
Normal Convalescent Home, Memphis  
Oakhaven Nursing Home, Memphis  
O'Keefe Nursing Home, Memphis  
Resthaven Nursing Home, Memphis  
Sneed Nursing Home, Whitehaven  
Southside Rest Home, Memphis  
Tennessee Home for Incurables, Memphis  
Variety Children's Heart Institute, Memphis

**Sullivan**

Lewis Rest Home, Bristol  
Francis Nursing Home, Bristol

**Sumner**

Chestnut Hill Sanitarium, Portland  
L. M. Swanson Nursing Home, Gallatin

**Trousdale**

Hartsville Nursing Home, Hartsville

**Warren**

Lively Heights Nursing Home, McMinnville  
Sunshine Nursing Home, McMinnville

**Washington**

Reed Nursing Home, Jonesboro  
Smith's Nursing Home, Johnson City  
Tate Nursing Home, Johnson City

**Weakley**

Luckett Rest Home, Gleason

**White**

Cedar Grove Nursing Home, Quebec  
Sparta Convalescent Home, Sparta

**Williamson**

Franklin Nursing Home, Franklin  
Graystone Nursing Home, Franklin  
Harris Convalescent Home, Franklin  
Lazenby Nursing Home, Franklin  
Third Avenue Rest Home, Franklin

**Wilson**

Mattie's Nursing Home, Lebanon

**Tennessee Valley Medical Assembly**

The Tennessee Valley Medical Assembly conducted its 7th annual session in the Read House, Chattanooga, on September 28-29.

Approximately 1,000 attended the Assembly. The scientific presentations were made by the guest speakers as follows:

"The Management of Perforated Peptic Ulcers," by Dr. John R. Paine, Professor of Surgery, University of Buffalo School of Medicine and Chief of Department of Surgery, Buffalo General Hospital, Buffalo, New York.

"New Horizons in Cardiac Surgery," by Dr. Dwight E. Harken, Associate Professor of Clinical Surgery, Harvard Medical School, Boston, Mass.

"Manifestations of the Diseases of the Adrenal Gland," by Dr. Lewis M. Hurxthal, Head, Department of Internal Medicine, Lahey Clinic, Boston, Mass.

"The Major Neuralgias and Their Surgical Treatment," by Dr. J. Grafton Love, Head, Department of Neurological Surgery, Mayo Clinic, Mayo Foundation, Rochester, Minn.

"Medical Obligations, Objectives and Opportunities," by Dr. E. Vincent Askey, Los Angeles, Calif., President Elect, American Medical Association.

"Inguinal Hernia—A Challenge" by Dr. Chester C. Guy, Chief of Surgery, Illinois Central Hospital, Clinical Associate Professor of Surgery, University of Illinois College of Medicine, Chicago, Ill.

"Hypnosis in the Practice of Medicine," by Dr. Milton H. Erickson, Editor of the *American Journal of Clinical Hypnosis*, Phoenix, Ariz.

"The Natural History of Arteriosclerosis Obliterans," by Dr. Edgar V. Allen, Senior Consultant in Medicine, Mayo Clinic; Professor of Medicine, University of Minnesota (Mayo Foundation for Medical Education and Research), Rochester, Minn.

"Minor Clinical Pearls," by Dr. Eugene A. Stead, Jr., Professor of Medicine, Duke University School of Medicine, Durham, N. C.

"Medicine and The Changing Social Order," by Dr. Morris Fishbein, Medical Editor, *Encyclopaedia Britannica*, Professor Emeritus, University of Illinois College of Medicine, Chicago, Ill.

"Newer Advances and Problems in Surgery of the Gastrointestinal Tract," by Dr. Richard T. Shackelford, Assistant Professor of Surgery, Johns Hopkins University Medical School, Baltimore, Md.

"Expected Behavior in Children With Em-

phasis on Adolescents," by Dr. Lee Forrest Hill, Chief of Pediatric Staff, Raymond Blank Memorial Hospital for Children, Des Moines, Ia.

"Acute Lung Abscess," by Dr. Morton M. Ziskind, Associate Professor of Medicine, Tulane University; Director of Division, Pulmonary Disease, Tulane University, New Orleans, La.

"Treatment of Cancer of the Skin," by Dr. Juan A. Del Regato, Director, Penrose Cancer Hospital; Associate Professor of Clinical Radiology, University of Colorado, Colorado Springs, Colo.

"Plastic Repair Following Farm, Industrial and Automobile Accidents," by Dr. James Barrett Brown, Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Mo.

"The Coeliac Axis in the Relation to the Expansion of the Operation for Gastric Carcinoma," by Dr. Lyon H. Appleby, Associate Professor, Clinical Surgery, University of British Columbia, Vancouver, B. C., Canada.

"Pathologic Physiology of the Pubococcygeus Muscle," by Dr. Arnold H. Kegel, Associate Professor in Gynecology, University of Southern California, Los Angeles, Calif.

"Light Sensitive Eruptions and Their Management," by Dr. Rudolf L. Baer, Professor of Clinical Dermatology and Syphilology, New York University Post Graduate Medical School, New York, N. Y.

"Delayed Union in Femoral Neck Fractures," by Dr. George O. Eaton, Associate Professor of Orthopaedic Surgery, Johns Hopkins University School of Medicine; Medical Director, Childrens' Hospital, Baltimore, Md.

### **Persons in Tennessee With Health Insurance**

The number of persons in Tennessee with health insurance increased by 58,000 last year with a recent total of 2,159,000 at the end of 1958, it was announced by the Health Insurance Institute. The report is founded on the 13th annual Health Insurance Council survey of health insurance coverage in the U. S., which revealed 123 million persons or 70% of the total civilian population were protected by health insurance as of December 31, 1958.

The survey, based on reports of insurance

programs of insurance companies, Blue Cross-Blue Shield and other health care plans, disclosed that the 2,159,000 persons covered by hospital expense insurance in Tennessee at the year's end surpassed the 1957 total of 2,101,000.

The number of persons with surgical expense insurance, which helps to defray the cost of physicians' charges for operations, climbed to 1,944,000. The 1957 figure was 1,834,000.

Persons protected by regular medical expense insurance, providing for doctor visits for non-surgical care, increased to 526,000 from 480,000.

### **More Journals to Reach TSMA Members**

The AMA House of Delegates approved sending one of ten specialty publications, plus the Journal AMA, the AMA News, and Today's Health to each dues-paying member of the AMA, as a membership benefit. A letter has gone to all AMA members requesting that the physician advise which one of the ten specialty journals he wishes to receive.

The ten optional publications are: AMA Archives of Internal Medicine, AMA Journal of Diseases of Children, AMA Archives of Dermatology, AMA Archives of Neurology, AMA Archives of General Psychiatry, AMA Archives of Pathology, AMA Archives of Surgery, AMA Archives of Otolaryngology, AMA Archives of Ophthalmology, and AMA Archives of Industrial Health.

### **Noted Physician Lectures in Memphis**

Dr. Paul Dudley White, Boston heart specialist, gave a public discussion at Goodwyn Institute on September 28th on the subject "Sickness from Age 25 to 50, the Critical Years." The lecture was made possible by the Memphis Heart Association.

A second talk, sponsored by the Heart Association and U-T College of Medicine, was made on September 29th at the University Center. Dr. White's subject was "Candidate for Coronary Heart Disease—His Identification and Protection."

### **Memphis Thoracic Society**

The Society met on August 26th at the West Tennessee Tuberculosis Hospital. The



program was presented by Dr. J. Leo Wright, Director of the Cardio-Pulmonary Laboratory at Baptist Hospital and Dr. Harry L. Davis, Assistant director.

### University of Tennessee College of Medicine

A \$250,000 grant has been awarded to the Division of Physiology, School of Biological Sciences of the University of Tennessee Medical Units. The funds are to augment and improve the division's facilities for training physiologists and will be allocated over the next five years. The grant is part of an effort by Congress through the United States Public Health Service to recruit and train a greater number of persons in the basic medical sciences.

★

The policies governing the admission of students to the University of Tennessee Medical Units will be analyzed to determine if they are producing qualified and adequate numbers of physicians and other graduates to serve Tennessee. To make such an analysis, the University has employed an administrative assistant for admissions, effective January 1, 1960.

★

A \$15,640 grant has been received by the University of Tennessee to finance the final 12-month research of a three-year study into the effects of disease upon fat metabolism. The grant is part of an allocation from the U. S. Public Health Service.

★

Seven staff members of the College of Medicine have been promoted. Promoted from assistant to associate professor in the department of medicine were, Dr. Glenn M. Clark, Dr. Alys Lipscomb and Dr. Hall S. Tackett.

Dr. Eugene J. Spiotta and Dr. Thomas N. Stern were promoted from instructor to assistant professor, Department of Medicine.

Dr. Homer G. Biggs was promoted from Instructor to assistant professor, department of Medical Laboratories, Section of Clinical Chemistry. Dr. Herman Lavelle, assistant to instructor in the Department of Otolaryngology.

★

Dr. Roger T. Sherman, formerly director of surgical research at Walter Reed Army

Medical Center in Washington, has joined the division of surgery of the University as assistant professor.

### Tennessee Academy of General Practice

The 11th annual session of the TAGP met at the Hermitage Hotel in Nashville on October 8 and 9. The scientific program included these subjects: "Changing Character of Infections in the Antibiotic Era," by Dr. Daniel Weiss, director of laboratories and chief of pathology department, District of Columbia Hospitals; "The Use of Hypnosis in Daily Practice," by Dr. Marion Moore, assisted by Dr. Arthur Greene and Dr. James Holmes; and "Intestinal Parasites in Daily Practice," by Dr. William Frye, Dean of the medical school and Vice President of Louisiana State University.

### Radiation Sources Must Register With Health Department

As a result of legislative action and responsibility placed upon the State Health Department, all sources of radiation in the State must now register with the Health Department. Under the new law, persons must register with the Health Department within ninety days after July 1.

Radiation sources include medical and dental X-ray machines, radon, radium needles and radioisotopes.

For further information contact the Radiological Health Service, Tennessee Department of Public Health, Nashville.

### Middle Tennessee Medical Association

The Middle Tennessee Medical Association will meet in Dickson, Tennessee, at the First Methodist Church on Thursday, November 19, 1959, starting at approximately 10:00 a.m. Dr. Carl C. Gardner, Jr., President, Columbia, Tennessee, will preside. The following program will be presented:

"Present Status of Substitutes for Insulin"—Dr. Albert Weinstein, Nashville.

"Uses of Medical Relaxation in the Office and Hospital 'Hypnosis'"—Dr. W. L. Chambers, Shelbyville, Tennessee.

"What the Physician and Patient Should Know About the Care of the Colostomy"—Dr. Eugene Regan, Nashville.

"The Treatment of Seizures in Children"

—Dr. W. B. Wadlington, Donelson, Tennessee.

“The Early Care of Babies Born with Congenital Deformities”—Dr. Chas. Mac-Millan, Nashville.

“Rehabilitation of the Industrial Patient”—Dr. James Lawson, New Johnsonville, Tennessee.

“Through the Looking Glass”—Mr. Jack Drake, Public Service Director, Tennessee State Medical Association, Nashville.

A dutch treat luncheon will be served. The evening dinner meeting will be held at the Easthill Restaurant.

### Tennessee Division, American Cancer Society

#### Cancer—A New Epidemiological Study

The observation of an unusually high incidence of cancer among a group of people exposed to some particular environmental factor has brought many specific causes of the disease to light. In 1775 Percival Potts made such an observation of an extremely high incidence of cancer of the scrotum among chimney sweeps. He reached the conclusion that heavy exposure to coal soot could cause the disease, and that it could be prevented by reducing exposure.

The correctness of Potts' interpretation of his data was shown by the subsequent decline in cancer of the scrotum following changes in the method of cleaning chimneys (and the passage of laws prohibiting the use of children as chimney sweeps). A century and a half later two Japanese scientists succeeded in producing cancer of the skin experimentally with soot. Later experiments together with epidemiological evidence have shown that prolonged exposure was required (e.g., many years in man or many months in mice).

A considerable number of other causes of human cancer have been discovered since Potts' time. These include many different chemicals as well as prolonged over-exposure to X-rays. In each case, the discovery resulted from the observation of a high incidence of cancer of specific site among a group of people, all of whom were exposed to the same agent.

At the present time it appears that the probability of cancer occurring as a result of exposure to a carcinogenic agent depends

upon the potency of the agent, the degree of exposure, the duration of exposure, and the susceptibility of the individual.

Taking into consideration what is already known about causes of cancer in human beings, and considering the circumstances which led to their discovery, there is reason to suspect that many cases of cancer result from exposure to environmental factors not yet identified as carcinogenic for human beings. Once these factors are determined, there is hope of preventing the disease by reducing exposure to the responsible agents just as analine dye workers are now protected from exposure to beta naphthylamine to avoid the risk of bladder cancer.

An effective approach to the problem is to learn as much as possible about the environment, habits and family history of a very large number of people and then ascertain the later incidence of cancer in relation to these factors. By using a population of several hundred thousand people in all walks of life, the number of individuals falling into specific exposure groups should be sufficient to yield reasonably reliable cancer incidence rates. If any of these groups have an unusually high incidence of cancer of some specific site, then further studies can be undertaken to determine whether a direct causal relationship exists.

A new prospective epidemiological study being undertaken by the American Cancer Society under the direction of Dr. E. Cuyler Hammond, the Society's Director of Statistical Research, is founded on this basis. It may be described briefly as follows:

Several hundred counties in 25 states, including Tennessee, have been selected as study areas. The selection was made in such a way as to give a satisfactory geographic distribution. Cities of various sizes and types as well as rural areas will be included.

Volunteer workers of the American Cancer Society are being trained for the enrollment and tracing of subjects in each of these areas. The volunteers themselves will be so selected as to include all classes of society. Each volunteer will enroll about ten families (i.e., households) in which there is at least one person over the age of 45. All members of these families who are over the age of 30 will be asked to fill out a questionnaire.



To keep the information strictly confidential, each subject will put his questionnaire in a sealed envelope for transmittal to the research center. The volunteer workers will not question the subjects and will not be permitted to see the filled-out questionnaires.

The study will begin in October 1959 and should be completed within a short time. Once a year thereafter for the next six years, every subject will be traced. Causes of death will be ascertained from death certificates. The physician who signed the death certificate will be requested to supply additional medical information on cases where cancer is mentioned on the death certificate. In addition, once every two years the subjects will be requested to answer a brief questionnaire concerning illnesses occurring during the intervening period.

It is hoped that the analysis of the records will yield important clues as to a number of possible causes of cancer.

Separate questionnaires for men and women will be used. These include sections on general characteristics (age, race, marital status, religion, etc.), family history, history of diseases, physical complaints, habits and exposures of various sorts, and a number of other items. On the form for women, special attention is given to questions relating to the breasts and female genital organs. On the form for men, special attention is given to occupation and occupational exposures. Questions relating to place of residence will be utilized to investigate the possible effects of air pollution. Information on twins in addition to information on family history and on husbands and wives should provide some data on possible inherited factors.

Although the major purpose of the study is to investigate factors of possible etiologic significance, it is hoped that it will also yield valuable information in relation to lay education. The subjects are asked detailed questions about "present physical complaints" and the answer will be studied in relation to cases of cancer diagnosed in the subsequent several months. In order to avoid biasing the subjects, questions are asked about physical complaints which are probably not related to cancer as well as about physical complaints which may be symptomatic of cancer. Assuming that posi-

tive answers to certain of these questions are highly related to the presence of cancer, the data should be of value in persuading people with such complaints to see their doctor immediately. The aim, of course, is to reduce the factor of "patient delay" in the diagnosis of cancer.

The Tennessee Division of the American Cancer Society is participating in the study. Nationally, it is planned to enroll about 500,000 families if possible. About 20,000 of these will be enrolled in Tennessee beginning on October 1, 1959.

## PERSONAL NEWS

**Dr. Arnold M. Meirowsky**, Nashville, has announced that **Dr. C. David Scheibert** will be associated with him in the practice of neurological surgery at 629 Medical Arts Building, Nashville. Dr. Scheibert has been certified by the American Board of Neurological Surgery. He formerly resided in Memphis.

**Dr. M. K. Moulder**, Nashville, announces the removal of his office from 211-23rd Avenue, North to 2220 State Street.

**Dr. George K. Henshall** and **Dr. S. S. Marchbanks**, Chattanooga physicians, have been elected vice presidents of the Hamilton County Unit of the American Cancer Society. Re-elected directors were **Drs. Van Fletcher, Edward G. Johnson, John B. Steele** and **Charles R. Thomas**.

**Dr. E. E. Reisman, Jr.**, Chattanooga, has been named to the executive advisory Board of the Monticello Fire & Casualty Insurance Company.

**Dr. L. W. Diggs** and **H. N. Naumann**, Memphis, recently presented scientific papers at the annual meeting of the American Society of Clinical Pathologists and the College of American Pathologists in Chicago, September 4-11.

**Dr. John R. Thompson, Jr.**, Jackson, has been elected president of the West Tennessee District Fair Association.

**Drs. Philip Livingston, Foster Hampton** and **Bernard Tepper** were panelists before a meeting of the Stanley Lachman Lodge of B'nai B'rith in Chattanooga. **Dr. Stewart Auerbach**, Chattanooga, also addressed the group.

**Dr. James H. Spaulding, Jr.**, Chattanooga, has joined **Drs. H. D. Long** and **H. D. Benters** in the practice of pediatrics.

**Dr. Horace Farrar**, Manchester, was honored on October 24th by the Civic Clubs in Manchester for 50 years in the practice of medicine. The occasion was the "Dr. Horace Farrar Day."

**Dr. Mildred Stahlman**, Nashville, was a symposium speaker recently before the annual meeting of the American Academy of Pediatrics in Chicago.



**Dr. R. Lee Austin** is now associated with **Dr. C. Barton Etter** in Memphis.

**Dr. John Lawson**, Johnson City, has been named president of the Washington County unit of the American Cancer Society.

**Dr. Robert Anthony**, Memphis, recently addressed the Memphis Lay Diabetic Association on the subject "Eye Problems."

**Dr. Albert B. Qualls**, Livingston, has been honored by the University of Tennessee College of Medicine for 50 years in the practice of medicine.

**Dr. David J. Slagle**, Elizabethton, has been elected general chairman for the 1960 Community Chest.

**Dr. E. C. Thurmond**, Martin, has been elected president of the medical staff at Obion County General Hospital. He succeeds **Dr. W. N. Carpenter** of Union City. Other officers include **Dr. R. L. Gilliam**, vice president, succeeding Dr. Thurmond; and **Dr. H. W. Calhoun**, secretary-treasurer, succeeding **Dr. E. P. Kingsbury**.

**Dr. Moore Moore, Jr.**, Memphis, recently addressed the meeting of the Methodist Hospital Auxiliary.

**Dr. Lowry Kirby**, Carthage, announces his association with **Dr. Norman M. Cassell** in the practice of pediatrics in Nashville.

**Dr. Stanton Harold Barrett** and **Dr. Hiram A. Laws, Jr.**, Chattanooga, have been presented the Golden "T" Certificates by the University of Tennessee Medical Unit honoring them for 50 years in the practice of medicine.

**Dr. Malcolm Clark** announces the opening of his office for the practice of medicine in Livingston.

**Dr. Charles Robertson Crow**, Dover, was recently honored by his community for 60 years of service in the medical profession.

**Dr. Julian C. Lentz, Jr.**, Maryville, recently addressed the Alcoa Kiwanis Club.

**Dr. Amos S. Christie** and **Dr. George W. Holcomb, Jr.**, Nashville physicians, addressed the Alabama Chapter of the American Academy of Pediatrics.

**Dr. W. A. Phillips**, Selmer, has accepted a residency in a large Chicago hospital where he will specialize in surgery.

**Dr. John H. Burkhart**, Knoxville, recently spoke before the Chattanooga-Hamilton County Medical Society on the subject "The Medical Organization—Its Benefits and Responsibilities."

**Dr. Cyrus Erickson**, Memphis, is the new president-elect of the Memphis and Shelby County Unit of the American Cancer Society. New directors include **Dr. Ralph R. Braund** and **Dr. Philip C. Schreier**, Memphis.

**Dr. Anthony Jerome**, Memphis, recently addressed the Millington Lions Club.

**Dr. L. W. Edwards**, Nashville, has been named chief of professional and educational services at Nashville General Hospital.

The Nashville Chapter of Medical Assistants were recently addressed by **Dr. Henry Brackin, Jr.** whose subject was "Drug Addiction."

**Dr. William L. Taylor** has rejoined Leonard Clinic in Lewisburg where he will be associated with **Dr. J. C. Leonard** and **Dr. Lloyd Grymes**.

**Dr. Joseph B. McMillon** has announced his association with **Dr. J. P. Glover** in the practice of medicine at Glover Hospital in Ashland City.

**Dr. William Robert Cate, Jr.**, Nashville, announces the removal of his office to 620 Medical Arts Building for the practice of General and Vascular Surgery.

**Dr. Herman J. Kaplan** has opened his office for the practice of Internal Medicine and Gastroenterology in Nashville.

**Dr. Charles W. MacMillan**, Nashville, has joined **Dr. Greer Ricketson** in the practice of plastic reconstruction and maxillo-facial surgery.

**Dr. Charlie J. Hobdy** has joined **Drs. Russell T. Birmingham** and **Roy W. Parker** in the practice of Obstetrics and Gynecology, Nashville.

## BOOK REVIEW

**Lesions of the Lower Bowel.** By **Raymond J. Jackman, M.D., M.S.** 347 pages, illustrated. **Charles C. Thomas, Springfield, Illinois, 1958.** (Price \$15.00.)

The recently published volume on Diseases of the Lower Bowel written by Raymond Jackman is based on the very extensive experience of the Mayo Clinic's Proctology section of which he is the head.

The book is concerned primarily with the diagnosis and differential diagnosis of diseases of the distal portion of the large intestine, while very little discussion is devoted to surgical management and technic.

The author devotes one chapter to the details of transrectal needle biopsy of intramural and extrarectal tumors. The various diagnostic procedures indicated for the characteristic findings of both the common and rare lower bowel lesions are well described and illustrated. Anorectal sinuses, fistulae, prolapse, diverticular disease, ulcerative colitis, polyps and carcinoma are some of the conditions discussed. The color atlas with its 75 plates is a most impressive part of the book.

This volume will be a most valuable addition to the library of any physician who deals in any way with diseases of the bowel.

L. HENNING MAYFIELD, M.D.

## ANNOUNCEMENTS

### Postgraduate Cardiac Day Vanderbilt University School of Medicine

The Middle Tennessee Heart Association, with the collaboration of the Department of Medicine, Vanderbilt University School of Medicine, an-

nounces a Postgraduate Day for Thursday, December 3, 1959, to be held at the University Hospital beginning at 9:00 a.m. Six guest speakers, prominent nationally in the field of cardiovascular diseases, will take part in the program. Dr. Irving Wright, of Cornell University Medical School, New York, will be the after dinner speaker. The course is approved for 7 hours of Category I credit by the American Academy of General Practice.

All physicians are invited to attend the course as guests of the Middle Tennessee Heart Association, which will charge \$10.00 to defray the costs of luncheon, dinner and social hour. For further information address the Department Postgraduate Instruction, Vanderbilt University School of Medicine.

### Southern Medical Announces Plans for 53rd Annual Meeting

The Southern Medical Association has announced that its 53rd Annual Meeting will be held in Atlanta, Georgia, at the Atlanta Municipal Auditorium on November 16-17-18 and 19.

Symposia on nuclear medicine and geriatrics will be highlights of the four-day meeting which will have the usual scientific lectures, panel discussions, exhibits, sectional programs, and medical color television.

The Woman's Auxiliary of the Association will hold its meeting simultaneously at the Henry Grady Hotel. A feature of their program will be a Doctors' Day Auxiliary Awards Luncheon to which husbands are invited.

### Civil Defense Conference Set

The 10th annual county medical societies Civil Defense Conference will be held in Chicago's Morrison Hotel on November 7-8. Sponsored by the American Medical Association's Council on National Defense, the purpose of the Conference is to inform and assist medical and health personnel for their roles in the event of a disaster.

Featured speaker will be Congressman Melvin Price (D-Ill.) who is ranking member of the Joint Congressional Committee on Atomic Energy. He will report on recent findings on the environment and biological effects of nuclear warfare. Carl J. Sprink, M.D., Detroit is conference chairman. More information may be obtained by contacting Mr. Frank W. Barton, Secretary, Council on National Defense, American Medical Association, 535 N. Dearborn, Chicago 10, Illinois.

### Physicians Licensed to Practice Medicine in Tennessee

Wilson, Wilford W., Jackson  
 Pakis, George, Jr., Jackson  
 Green, Waverly S., Jr., Bristol  
 Heintzelman, John H. L., Nashville  
 Warren, Cecil D., Athens, Ga.  
 Terry, James F., Jr., Cookeville  
 Millard, Joanne C., Donelson  
 Brady, Paul E., Columbus, Ohio  
 Rannels, Darwin W., Memphis

Anderson, Athur R., Memphis  
 Framm, Daniel H., Chattanooga  
 McMillon, Joseph B., Ashland City, Tenn.  
 Warr, Richard A., Memphis  
 Perez, Martin A., Brooklyn, N. Y.  
 Sheffield, William E., Memphis

### San Diego County General Hospital

The 13th Annual Post Graduate Assembly, sponsored by the San Diego, California County General Hospital will be held on November 4 and 5, at the County Hospital.

### Omaha Mid-West Clinical Society

The meeting will convene in Omaha's Civic Auditorium, November 2, 3, 4 and 5 for its 27th Annual Post Graduate Session.



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## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville, Tennessee.*

### Locations Wanted

A 37 year old married physician. Presbyterian. Graduate Tulane University. Desires associate or clinical practice in Ob-Gyn in middle or east Tennessee community of 25,000 or over. Available immediately. LW-331

A 32 year old married physician. Methodist. Graduate Duke University. Desires private practice in Ob-Gyn in medium size community in east or middle Tennessee. Available January, 1960. LW-332

A 39 year old married physician. Protestant. Graduate University of Louisville. Desires clinical practice in Internal Medicine in west or middle Tennessee community of 15,000 to 35,000. Has 3 years internal medicine residency. Available immediately. LW-334

A 35 year old married physician. Baptist. Graduate University of Louisville. Has 4 years General Surgery residency. Desires to specialize in surgery in east or middle Tennessee community of 20,000 to 30,000. Available immediately. LW-336

A 39 year old married physician. Protestant. Graduate University of Cincinnati. Desires clinical, assistant or associate practice in surgery in Tennessee community of 50,000 or over. Available immediately. LW-337

A 40 year old married physician. Presbyterian. Graduate University of Vienna. Desires to specialize in Roentgenology in hospital or clinic, in Tennessee community of 10,000 to 50,000. Available immediately. LW-341

A 33 year old married physician. Presbyterian. Graduate University of Madrid, Spain. Board eligible in Neurosurgery. Desires associate or assistant practice in Neurosurgery in Tennessee community of 100,000. Available immediately. LW-342

A 36 year old married physician. Protestant. Graduate Louisiana State University. Has 1 year Surgery residency. Desires location in east or middle Tennessee community for general practice. Prefers associate, assistant or clinical work. Available immediately. LW-343

A 38 year old married physician. Methodist. Graduate Vanderbilt University. Desires assistant, associate or clinical practice in Ob-Gyn in east or middle Tennessee community of 30,000-150,000. Available February, 1960. LW-346

A 42 year old married physician. Graduate Syracuse University. Desires private practice or associate practice in Dermatology in Tennessee community of 35,000. Available January, 1960. LW-352

### Physicians Wanted

Middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area 8,000. Located 72 miles from Nashville and about 32 miles from three hospitals. Agriculture and small industry. Excellent high school and elementary school. Adjacent to one of state's finest recreational areas. PW-123

Four partner clinic in northwest Tennessee community of 10,000 desires an associate under 35 years of age for general practice. Hospital located in community. PW-124

Middle Tennessee community of 1700 desires general practitioner age 25-40 interested in rural practice. No other physician in community. PW-125

Physician in west Tennessee town of 500,000 desires an associate for internal medicine practice. Office space and some equipment provided. PW-126

Physician in east Tennessee community of 30,000 desires an associate general practitioner and surgeon. Office space and some equipment provided. PW-127

Clinic in east Tennessee community of 4,000 has opening for general practitioner interested in Obstetrics. Hospital located in community. PW-128

Northwest Tennessee community of 1200, trade area of 3,000. Desires general practitioner. Nearest hospital 16 miles. Office space available. Near large recreational area. PW-129

Physician in middle Tennessee town of 200,000 desires an associate general practitioner. Office space and some equipment available. PW-130

Southern Tennessee community of 1000 desires general practitioner to replace physician who is leaving community to join hospital group in another community. Nearest hospital 15 miles. Office space available. Good location. PW-131

Physician in northwest Tennessee community of 5,000 desires general practitioner to associate with him in his practice in east Tennessee and southern Kentucky. Hospital located in community. Office space and some equipment available. Excellent location. PW-132



# Journal of the Tennessee State Medical Association

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The authors review the several methods of surgical attack upon the pseudocyst of the pancreas. Furthermore they evaluate the complications of these methods and the need for subsequent operations.

## The Selection of an Operation for Pseudocyst of Pancreas\*

WILLIAM R. SANDUSKY, M.D., W. DEAN WARREN, M.D.,  
and WILLIAM H. MARSH, M.D., M.S. (Surg)\*\*†  
Charlottesville, Va.

When one considers the selection of an operation for pseudocyst of the pancreas, he cannot but be impressed by the variety of procedures that have been used. Although it is now generally agreed that this lesion requires surgical intervention, there is striking lack of unanimity among surgeons as to the operation of choice. For this reason we have undertaken to appraise the various methods that have been employed.

Because the experience of an individual or even that of an institution is necessarily limited, it is of considerable importance to know what has been the experience of many surgeons. With this in mind the literature dealing with the surgical management of pseudocyst of the pancreas between January 1945 and November 1957 has been reviewed, and to the cases reported 12 others treated at the University of Virginia Hospital during the same period have been added. Thus, there are 488 cases available for analysis. These are referred to hereafter as the collected series, which is used as the basis for the discussion and conclusions that follow. The results of the vari-

ous operations have been judged by the mortality rate and by the requirement for a subsequent operation to deal with the failure of the initial procedure. In a previous communication a more detailed consideration of the same material has been reported.<sup>1</sup>

Pseudocyst of the pancreas is a collection of walled-off fluid or necrotic material or both produced by the action of extravasated and activated pancreatic enzymes on tissues with which they come in contact. It may be located in the lesser sac of the peritoneum, in the peripancreatic cellular tissues or even within the pancreas itself. The wall consists of the adjacent viscera covered with fibrous tissue of varying degrees of thickness and consistency. There is no epithelial lining. The content of the cyst is usually rich in pancreatic ferments. The etiology is trauma or pancreatitis or both.

Excluded from consideration in this study are the etiology, pathology and diagnosis of pancreatic pseudocysts. Moreover, it is not concerned with the supportive management of the patient during the preoperative and postoperative periods; nor with the methodology of handling so called true cysts, that is, congenital cysts, inclusion cysts, cystadenomas or other neoplastic cysts, either benign or malignant.

### Extirpation

In theory, total extirpation is the ideal treatment of pancreatic pseudocyst. This procedure rids the patient of the cyst in a

Supported by a Grant from the U. S. Public Health Service.

\*Presented before the Tennessee Chapter, American College of Surgeons, April 13, 1959, Memphis, Tenn.

\*\*Present address, Chattanooga, Tenn.

†From the Department of Surgery, University of Virginia School of Medicine and Hospital, Charlottesville, Virginia.

one-stage operation and affords an opportunity for pathologic examination of the complete specimen, thus eliminating the likelihood of mistaking a neoplasm for a pseudocyst. On the other hand, in actual practice excision has resulted in a high mortality rate. In the collected series there are 48 cases in which extirpation or excision of the cyst, in some instances with associated partial pancreatectomy, was the method of operation. There are other patients in whom excision was begun but abandoned in favor of another procedure. Fatalities among the 48 cases number 6, or 12.5 per cent. This is the principal objection to extirpation as the operation of choice for pancreatic pseudocyst, and it is without doubt due to the technical difficulty of accomplishment. The intense inflammatory and fibrous reaction which results from previous pancreatitis or previous trauma contains no well-defined cleavage plane between cyst and contiguous structures. Dissection in such a field is usually tedious and lengthy, and often is accompanied by profuse hemorrhage, and inevitably exposes nearby vital organs to the liability of serious injury. The relative infrequency with which total extirpation has been used and the comparatively high mortality of this operation in the collected series is perhaps a reflection of its technical difficulty. Rarely there are found small pseudocysts confined to the tail or body of the pancreas with minimal adherence to adjacent structures. Under such conditions extirpation with or without partial pancreatectomy would not only be the ideal procedure but would also be the simplest and most practical; on the other hand pancreatoduodenectomy for a lesion in the pancreatic head known prior to resection to be a pseudocyst is decidedly ill-advised.

#### External Drainage

Considered under the heading of external drainage are cases marsupialized as well as those treated by simple drainage procedures. There is no appreciable difference between the methods either in principle or in recurrence or mortality rates. There are a total of 225 cases in this group; 11 resulted in postoperative deaths due to peritonitis, hemorrhage and postoperative pulmonary complications. It might be assumed

that in many instances the deaths in this group were in a large measure a function of case selection and that procedures technically more difficult were used for good-risk patients and that external drainage, admittedly the most simple of the procedures from a technical standpoint, was employed in the more critically ill patients. If such were the case there would be no valid basis for comparing the operation with others. In an attempt to overcome this objection and to have some basis for comparison we have excluded 5 deaths from the total, 3 on the basis of the critical condition of the patient at the time of operation, each having had preoperative intraperitoneal rupture of the pancreatic cyst; one because of massive pulmonary atelectasis; and one because of death in the early postoperative period due to perforation of a carcinoma of the colon which had been unresectable at the time of drainage of the pseudocyst. The remaining 6 deaths occurred in patients who were seemingly good risks insofar as could be determined from data in the various case reports. Thus, for comparative purposes we have an adjusted mortality rate of 3.1 per cent. Fifty-five patients required an operation subsequent to the initial external drainage, 41 because of recurrence of the cyst, 13 because of a persistent fistula and one because of a fibrotic mass at the site of the cyst. Thus the rate for second operations is 24.4 per cent.

External drainage, either with or without marsupialization, has been the most widely used of all procedures in the treatment of pancreatic pseudocyst. Its strongest recommendation is the simplicity with which it can be performed. For this reason it is adaptable to the extremely ill patient. In such circumstances it can be employed as a first stage to internal drainage or extirpation. It usually permits an opportunity for biopsy. Aside from any immediate complications or mortality the chief objection to external drainage, either with or without marsupialization, is the high incidence of failure of obliteration of the cyst. In many instances closure of the fistula is reasonably prompt but in others drainage is protracted. The fistula is inevitably attended by the loss of fluids, electrolytes, and digestive enzymes which are always annoying and



which often attain serious proportions. Not infrequently the pancreatic enzymes in the discharges lead to irritation and excoriation of the skin. Another complication is that of secondary infection either of the fistulous tract or of the cyst itself. Hemorrhage sometimes occurs. Premature closure of the tract results in reformation of the cyst. Persistence of the fistula or recurrence of the cyst leads to the need for a secondary operation. Moreover, marsupialization carries no assurance against leakage and peritonitis. The many objectionable features of external drainage might be acceptable if its mortality rate compared more favorably with that of other operations which are attended by a decidedly lower incidence of recurrence and reoperation. But such is not the case, and a very discouraging picture of the external drainage procedures emerges from a study of the collected series.

#### Internal Drainage

The term internal decompression or drainage is used to denote the creation of an opening between the pancreatic pseudocyst and a hollow viscus. The stomach, duodenum, jejunum, the various components of extrahepatic biliary apparatus and even the pancreatic duct itself have been used either as receptacles or as conduits for the secretions of the pseudocyst. Before considering the relative merits of each of these possibilities it is well to point out the advantages and disadvantages of internal decompression in general.

The methods of internal drainage now commonly accepted are capable of adequate decompression and ultimate obliteration of the cyst and at the same time permit reabsorption of fluids, electrolytes and pancreatic enzymes into the gastrointestinal tract; in addition there usually is opportunity for inspection of the interior of the cyst and for biopsy and frozen section of a portion of the cyst wall. Moreover, internal drainage eliminates the tedious and potentially dangerous dissection of total extirpation and the persistent fistulas of external drainage with all of their attendant disadvantages. Among the objections to internal drainage in general is the danger of leakage or separation at the cystovisceral junction

owing chiefly to the friability of the cyst wall. There is also the possibility of regurgitation of the content of the alimentary tract into the cyst cavity with resultant stasis, infection, and activation of pancreatic enzymes. Stenosis of the cystovisceral stoma may interfere with adequate drainage and finally internal drainage lacks technical simplicity when compared to external drainage.

*Cystogastrostomy.* Of the internal drainage procedures, cystogastrostomy has been the one used most frequently. In the collected series there are 107 cases, mortality 2.8% and subsequent operations in 4.7 per cent. It is important to distinguish between a retrogastric cystogastrostomy made via the transventricular route and one constructed by a suture anastomosis joining an opening in the free gastric wall to one in the cyst. If the cyst, as is usually the case, is partly posterior to the stomach, transgastric cystogastrostomy can be performed. Invariably there is fusion between cyst and posterior gastric wall, and it is neither necessary to disturb this to establish the communication nor to utilize sutures, except occasionally for hemostasis. The junction between the cyst and the stomach is in the lesser sac where the complications of adhesions will be minimized. Moreover, an outstanding feature of the transgastric operation is the relative simplicity with which it can be done.

In terms of leakage or separation at the cystogastric junction, the suture method is at a distinct disadvantage when compared to the transventricular retrogastric method. Results of these two methods of cystogastrostomy and cystoduodenostomy are discussed below. All methods of internal decompression demand adequacy of stoma if stenosis subsequent to shrinkage in the cyst is to be avoided. In preparation of the retrogastric stoma no more of the fused area should be excised than is required for adequate microscopic examination. A patulous opening interferes with the valve-like infolding of the gastric mucosa which appears to be a significant barrier against regurgitation from stomach to cyst.<sup>2</sup> This is not to imply that gastrocystic regurgitation does not occur; in the collected series gastric roentgenography was done on 25 patients



at various time intervals following cystogastrostomy. In the transgastric group 8 showed reflux into the cyst, 11 did not. In the suture anastomosis group one had reflux, 5 did not. Unfortunately there is no information relative to excision of juxta stomal tissue, or to the position of the stoma; nor is there chronologic uniformity in the performance of the roentgenographic studies. All that can be concluded is that reflux of gastric content into the cyst does occur following cystogastrostomy. For this reason and because it is not often possible to place the cystogastric opening in a dependent position when the patient is in the erect or sitting posture, the patient should be encouraged to lie in the face down position whenever practicable until the cyst is obliterated.

*Cystoduodenostomy.* In principle cystoduodenostomy is similar to cystogastrostomy and it would seem to be attended by the same advantages and by the same disadvantages as the latter operation with the added liability of injury to the common bile duct owing to proximity of this structure. This operation was used in the collected series only 15 times, with a mortality rate of 6.7 per cent. Twenty per cent of the patients operated upon required a subsequent operation, but in each instance the need for such operation occurred in those cases treated by the suture anastomosis technic rather than by transduodenal cystoduodenostomy.

*Comparison of methods of cystogastrostomy (or cystoduodenostomy).* There are two basis methods for the performance of either a cystogastrostomy or a cystoduodenostomy,—one utilizes a conventional suture anastomosis by which an opening in the free gastric (or duodenal) surface is joined to a stoma made in the cyst; the other method, accomplished transduodenally or transventriculally, is the procedure originally described by Jurasz<sup>3</sup> whereby a simple incision is made from the gastric (or duodenal) side through the fused walls of the stomach (or duodenum) and cyst into the cavity of the cyst.

It has occurred to us that the results of these two methods ought to be compared. In the combined cystogastrostomy and cystoduodenostomy groups there are 88 cases

known to have been done by the Jurasz method and 24 by a suture anastomosis. In the former group (Jurasz method) there were 2 deaths and 4 secondary operations or serious complications, making a total of 6, or 6.8%, unsatisfactory, while in the latter group (suture anastomosis) there was one death and 3 of secondary operation or serious complications making a total of 4, or 16.7%, unsatisfactory cases.

*Cystojejunostomy (simple loop).* If adequacy of decompression be the first requirement of internal drainage, prevention of regurgitation is the second. It is in this regard that a simple loop anastomosis between cyst and jejunum without a diversionary short circuit proves vulnerable. The patulous opening necessarily produced by the cystoenteric anastomosis permits entry of intestinal content into the cyst which in some instances becomes nothing more than a jejunal diverticulum, subject to infection, activation of pancreatic ferments and other untoward sequelae. These theoretical objections are substantiated by the poor results which have been reported for this method. There are 32 examples of this procedure in the collected series; the mortality rate of 15.6%, that for subsequent operation 6.3 per cent.

*Cystojejunostomy (with Jejunojejunostomy).* The placing of a diversionary jejunojejunostomy proximal to the cystojejunal anastomosis, employed 8 times in the collected series, has not given satisfactory results. Although there were no operative deaths, the need for reoperation was required in 37.5% of the cases. The number is insignificant, but on theoretical grounds it is difficult to see how an enteric arrangement such as this could be regurgitant-free.

*Cystojejunostomy (Roux-en-Y).* Cystojejunostomy performed by means of a de-functionalized jejunal limb is gaining in popularity. The operation has many theoretical advantages and in the collected series it has been an effective clinical procedure with acceptable mortality, recurrence and secondary operation rates. There are 48 cases with a mortality rate of 2.2% and a rate of subsequent operation of 4.3 per cent.

This operation is obviously superior to either of the other two cystojejunal anasto-

moses. That it affords effective decompression and ultimate obliteration of the cyst has been confirmed both clinically and in the laboratory. The anastomosis can be placed at the most dependent part of the cyst, a decided advantage when compared to cystogastrostomy. In the interest of prolonged stomal patency a long tangential cystovisceral anastomosis is preferable to one in which the transversely divided end of the bowel is joined to the cyst. Moreover, regurgitation is not a problem when the defunctionalized limb is from 12 to 18 inches in length.

Compared to transgastric cystogastrostomy, cystojejunostomy is a more elaborate operation. Another objectionably technical feature stems from friability of the cyst wall. If this is excessive the security of the cystovisceral anastomosis will be jeopardized. There are reports of leakage but in only one instance was subsequent operation required for this reason. The cyst recurred and at the second operation there was atresia of the stoma and complete separation of the defunctionalized limb. Reanastomosis was accomplished and the patient recovered after a stormy postoperative course. This event substantiates the theoretical concept that leakage or even separation of a defunctionalized limb does not pose the same risk as does leakage from an anastomosis through which there is the constant flow of intestinal content.

*Other methods.* Use of the procedures, cystocholecystostomy and cystocholedochostomy, has appeared among the collected cases in too few instances for the results, obviously poor on the basis of the data at hand, to be of significance. However, either procedure is objectionable on the grounds that there is no assurance against the reflux of bile into the cyst or of cyst content into the biliary tree. Likewise, the reported experience with section of the sphincter of Oddi alone or as an adjuvant to another procedure is too meager for evaluation.

### Conclusions

The treatment of pancreatic pseudocyst is surgical. Of the many operative proce-

dures that have been used, those which have been attended by the greatest success in terms of mortality and secondary operation rates are defunctionalized cystojejunostomy (Roux-en-Y) and transventricular retrogastric cystogastrostomy. The former is superior to the latter on theoretical grounds but is more difficult technically. In theory, total excision of the pseudocyst is the ideal operation, but the reported mortality of the collected series and the potential technical difficulty of accomplishment limit its practical application to small cysts located in the distal part of the pancreas and unattached to adjacent vital structures. Of the cases treated by external drainage or marsupialization, one-quarter require subsequent operation. This objection would be acceptable if the mortality rate were significantly lower than other more effective procedures. Nevertheless, its simplicity of execution recommends it for limited use in those patients who cannot tolerate a more extensive operation.

Table I  
RESULTS FROM THE COLLECTED SERIES

Operation	No.	Re-operation	Mortality
Extirpation	48	6.3%	12.5%
External drainage	225	24.4%	3.1%*
Internal drainage			
Cystogastrostomy	107	4.7%	2.8%
Cystoduodenostomy	15	20.0%	6.7%
Cystojejunostomy			
Simple loop	32	6.3%	15.6%
With jejunojejunostomy	8	37.5%	0
Roux-en-Y	46	4.3%	2.2%
Other methods	7	14.2%	14.2%
	488		

\*Adjusted from 4.9%. See text for explanation.

### References

1. Warren, W. D., W. H. Marsh, and W. R. Sandusky: An Appraisal of Surgical Procedures for Pancreatic Pseudocyst, *Ann. Surg.* 147:903, 1958.
2. Warren, W. D., W. H. Marsh, and W. H. Muller, Jr.: Experimental Production of Pseudocysts of the Pancreas with Preliminary Observations on Internal Drainage, *Surg. Gynec. & Obst.* 105: 385, 1957.
3. Jurasz, A.: Zur Frage der Operativen Behandlung der Pankreascysten, *Arch. klin. Chir.* 164:272, 1931.
4. Franke, H., and E. Kern: Keplicationeri bei der Operativen Behandlung von Pankreascysten, *Der Chirurg* 25:73, 1954.



The author points out that psychiatry can not divorce itself from the concept that mental functions, emotions, and the like have their origin in an anatomic structure,—the brain. Though we may know what the pathways are, function of the brain must be related to neurophysiology and neuroanatomy.

# THE NEUROGENESIS OF BEHAVIOR\*

CARROL C. TURNER, M.D.,† Memphis, Tenn.

At the risk of seeming pedantry, we feel that *neurogenous* would be a better term for the title of this paper, than *neurogenesis*. The former means originating in the nervous system, whereas, the latter refers to the formation of the nervous system. Since we know that all behavior originates in the nervous system its elaboration proceeds hand in hand with the progressive stages of development of the nervous mechanism. The student receives instruction in neuroanatomy, neurophysiology, and finally those symptoms and objective findings resulting from organic disorganization of the nervous system, referred to categorically as organicity. As a corollary, his instruction in psychiatry includes the development of the personality, the mental mechanisms and psychodynamics of behavior, and psychopathology. Is it any wonder then that he graduates with the impression that there are two different fields of medicine—organic neurology the one—and psychiatry the other, as distinctly individual as are cardiology and/or gastroenterology? From his instruction in physiology he is aware that the nervous system is the mediator of all bodily activity. But what of those highly specialized functions which have to do with emotions, reasoning, memory and other necessary components comprising mental function? It would seem advisable to put more stress on the relationship of behavior to the neural mechanism in teaching psychiatry. Somewhere in the medical curriculum there should be a tighter integration between neuroanatomy, neurophysiology, and those

functions which determine behavior dependent on the cyto-architecture of the cerebral cortex.

In 1665, Niels Steenson gave a lecture on the brain in which he said, "I am very much convinced that they who seek solid knowledge, will find nothing satisfactory in all that has been written about the brain, but it is very certain that it is the principal organ of the soul, and the instrument by which it works very wonderful effects." Commenting on this, Percival Bailey said, "We find no satisfaction today if we try to study the brain only as the organ of the soul which is impalpable and immeasurable. From this point of view we can arrive only at the conclusion of the psychoanalyst, that the study of the nervous system adds nothing to our understanding of the behavior of human beings." He adds that our conclusion becomes quite different, if we look at the brain from the standpoint of evolution which demands that mental operations be derived from ordinary physical principles by progressive steps. From this point of view the nervous system may be considered as a mechanism for the transmission of signals which arise in the peripheral sense organs, are transmitted by sensory nerves as impulses of electrical potential to the nervous system, and there are variously integrated and then reflected over the motor nerves to result in our behavior. Their integration in the spinal cord is simple and invariable; that in the cerebral cortex is fluctuant and relatively unpredictable.

It has been shown that the cerebral cortex acts like a computing machine, responding to misalignment by giving a neural response calculated to reduce the misalignment by a process known as negative feedback. This means the joining of a receptor and an effector in such a way that the re-

\*Read before the meeting of the Tennessee Psychiatric Association, April 14, 1959, Memphis, Tenn.

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ceptor cannot only stimulate the effector but also be stimulated by it.

R. J. A. Berry in his book, *Brain and Mind*, states that the neurone, particularly the short interpolated or internuncial neurone is the physical instrument of mind, but that consciousness, memory, speech, thought and reason can only manifest themselves when there is a sufficient number of neurones for the purpose. Further he states that should some of the 9,280 million neurones in the cerebral cortex be deficient from developmental, or other cause, there are inevitably produced aberrations of intelligence and mind, with a corresponding alteration in reactions to the environment. That is, the behavior of the individual becomes modified in accordance with the cortical development of his neurones. This is exemplified by such deficit states as cerebral palsy, some of the organic psychoses, amaurotic family idiocy and lesser constellations such as simple retardation and some of the post-traumatic reactions and character anomalies.

Muncie says, "All perception, memory, imagination, fancy, anticipation, language and mathematics, logic and philosophy are exercises in symbolization, linguistically elaborated only in the human. Studies in comparative anatomy show that these functions develop hand in hand with the increasing importance of the cerebral hemispheres."

Dandy demonstrated the neural basis for the conscious-not conscious concept by ligating the left anterior cerebral artery.

Awareness progresses in direct proportion to the development of the nervous system from infancy to maturity. It likewise decreases with the breaking down of the neural mechanism in old age, as seen in the senile psychoses.

Fatigue, or ill health, lower the general grasp as a result of disturbed metabolism or the impoverishment of circulation to the brain, as is encountered in arteriosclerotic encephalopathy.

Emotional factors influence awareness. Here, we must take into account the diencephalon. The chief structure of the diencephalon subserving behavior is the hypothalamus, for it contains important visceral motor centers. When stimulated it

throws the entire sympathetic system into activity, causing dilatation of the pupils, erection of hair, constriction of the blood vessels, etc. The emotional reactions of fear and rage are largely mediated through the hypothalamus. Its destruction impairs or abolishes emotional reactions. In decorticate cats the inhibitory control of the cerebral cortex has been destroyed, and the animal exhibits the physical signs of rage on the slightest provocation. But if the hypothalamus is also cut away, this emotional behavior can no longer be elicited.

Individual behavior begins in utero between the fourth and fifth months of fetal life. Its vigor and intensity may often suggest the expected pattern of behavior after birth. During this period the behavior is said to be entirely on a reflex level and more or less limited to motivation by the spinal cord and lower brain stem.

At birth higher neurone levels assume function and such infantile behavior as breathing, sucking and swallowing appear. These are subserved by the upper cervical segments of the cord, the twelfth, tenth and ninth nuclei in the medulla, and by the seventh and motor fifth nuclei in the pons.

By the end of the infant's first month of life all of the cranial nerves have come into the production of behavior. Awakening of the emotions is evidenced by such early feeling states as comfort, discomfort and happiness manifested in behavior as sleeping, crying or cooing.

At about the end of the infant's first year his oral needs are gradually on the decline, and he progresses to his next—the anal—phase of his behavioral pattern.

At this time there appear traits bespeaking an inherent quality and he shows the early appearance of attributes of his forebearers. Instinctual behavior begins to awaken and he may be said to be in his diencephalic phase.

Quoting Noyes,—“In the vegetative nervous system, spinal cord, medulla and basal nuclei are synapses that unite neurones into those groups or combinations which provide for our phylogenetically older functions and racially conditioned patterns of behavior. These combinations are determined by the experience of the race and not of the individual. They are, therefore, innate. The

behavior associated with the activity of these hereditary neuronic combinations is standardized, uniform in all individuals of a species and executed with little or no awareness."

In 1889, Ramon Y. Cajal discovered the neural synapse, the structure that makes possible the integration of neurones, responsible for not only reflex, but all the successively higher forms of behavior.

At about the seventh month of fetal life the brain has acquired all the neurone cells it will ever possess. The neurocytes of the cortex are still largely in their embryonic state. To function their fibres must first acquire a neurilemma sheath. At this time neurobiotaxis probably is in its early stages in the cerebral cortex. It is accepted by neuro-anatomists that this process is possessed by the brain stem, and by it a neurone and its dendrites is attracted to a point of stimulation. By this process many links in neurone chains are established. It accounts for the juxta-position of the motor cranial nerves to the median longitudinal bundle and is most strikingly exemplified by the facial nucleus whose fibres are drawn dorsally and swing about the nucleus of the sixth cranial nerve, this being the pacemaker of the head and eye turning mechanism. If we can assume that this same process takes place in the cerebral cortex, we can assume chains of neurones over whose pathways similar impulses pass again and again to establish patterns of behavior, thus establishing awareness of the similar preceding experience. This experience creates some sort of change, either synaptic, or physicochemical. Together with Bailey's negative feed-back theory the subsequent passage of similar impulses is facilitated, resulting in the reanimation of the original experience in the form of memory, or *ekphoria*. So is born one of our most vital constituents of behavior, for without memory, experience means nothing.

For the unitary activity of the individual, or behavior, Adolf Meyer introduced the term, *ergasiology*, derived from the Greek *ERGASIA*, meaning work or labor. *Ergasiology* includes overt or explicit behavior and implicit behavior—the mental functions of sensations, perceptions, memories, fancies, etc.

The anatomic and physiologic basis for this unitary behavior has the brain as its principal integrating organ. Without the forebrain hemispheres there can be only limited, if any, activity of this character. Muncie says, and I quote,—“Nevertheless, behavior cannot be adequately described in neurological terms as reflexes, synergias, tonus, etc, but only by what and how the person acts, feels, thinks, fancies, remembers, anticipates, rendered in critical common sense statements.”

However, he adds, “When physiological processes become long circuited by means of delayed reflexes through the wealth of experience and associative material of the individual, they become amalgamated as a flow of personality functions with their sensation, perceptions and memories.”

A corollary to this is that short circuiting of this amalgamation of many fibre tracts and associative neurone circuits results in a more limited selection of routes over which behavior may be subserved. Behavior then regresses to those levels of earlier integral development with resulting impoverishment of all the mental processes approaching a more primitive and instinctual pattern with its side effects of disorganization of the personality. Typical examples of such processes are some types of schizophrenia. Conditions of lesser intensity, bespeaking a more concise cortical localization are various types of agnosia, apraxia, astereognosis, and motor, sensory and visual aphasia.

Since the greater part of the brain is composed of so called silent areas, we can only assume that these areas do play their part in the production of behavior through vast numbers of conduction systems by means of their psycho-associational neurones. However, we are learning more and more of the functional significance of these areas as research unfolds some of their secrets. Recent investigations by Penfield, Milner, Mullan, and others direct attention to the rhinencephalon, particularly the hippocampus, as a center for the production of psychomotor epilepsy. Their investigations also suggest the temporal lobe as the memory centre.

In 1880, Hughlings Jackson wrote of certain psychic states during the onset of epi-



leptic seizures, much more elaborate than crude somesthetic sensations. These he called "Intellectual auras."

Penfield and Mullan have mapped the temporal lobe by means of electrical stimulation in conscious subjects. Their research reveals localization of different categories of perception determining one's awareness of certain aspects of his environment. These investigators conclude that the temporal lobe (exclusive of the auditory area) is largely devoted to comparative interpretations of present perceptions.

In closing, we will summarize by a quotation from Tilney and Riley, "The final step in the centralization of the nervous mechanism, enabling it to attain consummation of its functional capability, arrived with the addition of the psycho-associational neurone. By this means numerous associations are made possible between the various types of sensibility, including somesthetic sense, vision, hearing, taste and smell, out of which the experience of the individual is constructed and upon which the foundations of the higher faculties rest."

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**Acute Dissecting Aneurysm of the Aorta. Diagnosis and Selection of Patients for Surgery.**

Julian R. Beckwith, M.D., William H. Muller, M.D., W. Dean Warren, M.D., and J. Edwin Wood, Jr., M.D. *A.M.A. Arch. Int. Med.* 104:217, 1959.

The clinical diagnosis of acute dissecting aneurysm of the aorta has become increasingly important since a method of surgical treatment has been devised and successfully employed. Previously, the diagnosis was mainly valuable for the differentiation from other conditions. The diagnosis is very important because the mortality of untreated dissecting aneurysm is much greater than most of the conditions with which it may be confused. The clinical picture of acute dissecting aneurysm is protean in its manifestations and may mimic many other conditions.

There are now three methods of surgical techniques employed depending on the extent and location of the aneurysm: (1) transection of the aorta, obliteration of the false passage peripherally, then the making of an opening in the intima proximally; (2) direct repair of the aneurysm by suturing of the intimal tear and obliteration under direct vision with the aid of extracorporeal circulation; and (3) resection of the area involved and replacement with a prosthesis.

The clinical histories of 11 patients with dissecting aneurysm who underwent surgery were reviewed and the diagnostic points emphasized. Four of these 11 patients survived operation and were doing well postoperatively.

The diagnosis of dissecting aneurysm presents a great challenge since surgical therapy offers a better chance of survival than spontaneous cure.

However, enthusiasm should be tempered with judgement; not only should the diagnosis be assured but the patient should not have any other conditions which would prevent survival. The operation should be done immediately in properly selected patients as quickly as the diagnosis is made.

Hypertension is reported to be present in the great majority of patients with dissecting aneurysm, especially in those above forty years of age. The EKG. was abnormal in all but one patient. Various clinical pictures may follow such arterial obstruction, depending on the artery involved. Syncope ushered in the episode in two patients. In both of these there was involvement of the aortic arch, and in one of these the innominate and right common carotid were affected.

The history of pain was the most important factor in the diagnosis. Pain is very severe and usually radiates to the back. There was X-ray evidence of dilatation of the aorta in 6 of the 11 cases and in another an aortogram showed a double-barreled lumen. A difference in the peripheral pulses was helpful in 6 instances. An abdominal bruit was helpful in 3 instances. The development of an abdominal mass, cardiac tamponade, development of transient hypertension with lumbar pain, and the appearance of systolic bruit may be helpful in the diagnosis.

The mortality of acute dissecting aneurysm is very high and has been variously reported to be from 75-90 percent. The newer surgical aids and technics should substantially reduce the postoperative mortality. (Abstracted for The Middle Tennessee Heart Association by B. H. Webster, M.D., Nashville.)



The search continues for variations in the phenothiazine to provide medication in the field of the psychologic diseases.

## Thioridazine in Treatment of Mental Disorders

G. H. AIVAZIAN, M.D.,\* Memphis, Tenn.

This was a preliminary double blind study of the therapeutic efficacy and complications of thioridazine,† a phenothiazine derivative. The sample consisted of 20 male and female inpatients, ranging from 15 to 65 years of age treated in Gailor Psychiatric Hospital. The daily dosage varied from 200 to 800 mg. by mouth, and the average duration of treatment was one month, range of 21 to 60 days. Six of these patients were treated with a placebo for 28 days followed by thioridazine therapy for 28 days. Evaluation of results was based on changes in 18 signs and symptoms and behavioral changes ranked by residents, and clinical interviews by the author. The degree of improvement was assessed as follows: *not improved*, no change or worse; *slight improvement*, partial symptomatic relief; *mod-*

*erate to marked improvement*, largely or completely symptom-free, able to return home and resume normal activities, in part or fully. Table 1 indicates results by diagnosis, duration of illness and dosage.

### Results and Comments

Thioridazine was found very effective in the treatment of acute schizophrenia (acute undifferentiated, catatonic and simple types), but was ineffective for chronic schizophrenia. Nine of the 12 patients, who had been ill for less than one year, showed moderate to marked improvement. The rate of improvement in first attacks was higher than in relapses. Patients with anxiety, tension, insomnia, hallucinations and anorexia responded more promptly and favorably than did patients with delusions, somatic complaints, depressive features, negativism and withdrawal. For all improved patients the maximum dosage ranged from 400 to 600 mg. daily and improvement appeared within 7 to 26 days, average 18 days.

Table 1  
RESULTS WITH THIORIDAZINE THERAPY IN 20 PATIENTS  
WITH MENTAL DISORDER

Factor	Number of Patients	Degree of Improvement		
		Moderate to Marked	Slight	Not Improved
1. <i>Diagnosis</i>				
Schizophrenia				
Acute, first attack	3	3	—	—
Acute, relapse	6	4	2	—
Chronic				
Simple, childhood, paranoid types	8	—	3	5
Psychoneurotic reactions				
Depression, acute	2	1	—	1
Obsessive, compulsive, relapse	1	1	—	—
2. <i>Duration of Illness</i>				
First attack, 0-1 Yr.	4	4	—	—
Relapses, 0-1 Yr.	8	5	2	1
Chronic, 1-4 Yrs.	8	—	3	5
3. <i>Daily Dosage</i>				
200 mg.	5	1	3	1
400-600 mg.	13	8	1	3
800 mg.	2	—	1	2

\*From the Department of Psychiatry, University of Tennessee College of Medicine, and the Gailor Psychiatric Hospital, Memphis, Tenn.

†Supplied by Sandoz Pharmaceuticals as TP-21 (Mellaril).

In 8 of the patients with chronic schizophrenic reaction of the simple, childhood and paranoid types, thioridazine in 200 to 800 mg. dosage daily was found ineffective even after treatment was prolonged for 8 weeks. Other investigators have reported a high incidence of improvement (78 to 84%) in chronic schizophrenics.<sup>3,4</sup> This has been achieved by either prolonging treatment for months with 100 to 66 mg. dosage, or with massive doses (maximum 2400 mg.) administered for up to six weeks.<sup>4</sup>

Of the two depressed patients one improved and one did not improve on thioridazine. The second patient later recovered with electroshock therapy. The patient with obsessive compulsive neurosis had been successfully treated, in this hospital, with chlorpromazine 3 years ago. Therapeutic results with thioridazine were equally satisfactory.

Early termination of treatment after improvement was attained resulted in relapse. Thus, 2 patients, after showing marked improvement relapsed when placed on a placebo. On further treatment with thioridazine they once again improved. Five improved patients have been followed up for 3 months after their discharge from the hospital. On a maintenance dose of 25 mg., q.i.d., 3 patients have remained improved, whereas 2 patients relapsed within one month after discontinuing their medication.

**Placebo Effect.** There was a clear cut difference between thioridazine and a placebo effect. Of the 6 patients started on placebo none improved. With thioridazine, 3 of this group improved. Of the 4 patients that had improved on thioridazine, two relapsed on placebo therapy and 2 remained improved.

**Side Effects.** The only side effects observed were: dryness of the mouth, commonly; drowsiness in 2 patients; constipation in one patient; elevation of temperature to 100.6 F. (rectal) in 2 patients; thrombocytopenia, (platelet count 850 to 650) occurred in one patient on three separate occasions while on thioridazine. The platelet count promptly returned to normal after withdrawal of medication. The absence of extrapyramidal symptoms is noteworthy.

### Summary

This was a double blind study on the therapeutic efficacy, side effects and complications of thioridazine, a phenothiazine derivative. The sample consisted of 20 male and female patients, ranging from 15 to 65 years of age. The optimum results were obtained with 400 to 600 mg. by mouth daily. Seventy-five percent of the acute patients, ill less than one year, showed moderate to marked improvement within one to four weeks. Eight chronic schizophrenic patients treated for a period of 6 to 9 weeks did not improve. Early termination of treatment resulted in relapse. Thioridazine was very well tolerated.

### References

1. Cohn, Sidney: TP-21, A New Phenothiazine Derivative, *Am. J. Psychiat.* 115:358, 1958.
2. Glueck, B. C., Meehl, P. E., and Heistad, G. T.: Approaches to the Quantitative Assessment of Clinical Analysis, Scientific Exhibit *Am. Psychiat. Assoc.*, April 27, 1959.
3. Kinross-Wright, John: Newer Phenothiazine Drugs in Treatment of Nervous Disorders, *J.A.M.A.* 170:1283, 1959.
4. Remy, M.: Essai d'un Nouveau Dérivé de la Phenothiazine, le Mellaril, en Clinique Psychiatrique, *J. Suisse Med.* 88:1221, 1958.

## CASE REPORT

### An Unusual Case of Spontaneous Hemorrhage into the Primary Vitreous Of Nine-Month-Old Child\*

Roland H. Myers, M.D., Memphis, Tenn.

S. P., a 9 month old boy was seen on Sept. 8, 1958, with the history that at the age of 4 months the left eye changed from blue to a brownish color. Two months later the mother noticed the pupil had a whitish reflex and that at times the eye became a little red. The mother's pregnancy had been normal, the labor normal and the child had been healthy from the time of birth.

Examination revealed a normal right eye with a blue iris. The left eye presented a brownish-colored iris with numerous small capillaries on its surface. There was heavy black proliferated pigment on the iris margin from 11 o'clock around to 3 o'clock. The pupil dilated irregular in a key-hole shape, vertically, due to posterior synechiae of the iris to the lens.

Study of the fundus under anesthesia revealed an anterior vitreous filled with a homogenous yellowish-gray mass with a few specks of black pigment on its surface, and nasally a few fine capillaries. On transillumination there was a black pigment shadow in the periphery down and in, about the size of a pea. Tension of the right eye was 23, of the left eye 8, by Schiotz tonometer. The general appearance of ophthalmoscopic study was that of an inflammatory condition. By external observation, shining a flashlight through the pupil, it resembled a retinoblastoma.

The *diagnosis* of an inflammatory mass of unknown etiology was considered the most likely possibility. The family was advised that since the eye was blind, if any questionable changes were noted, enucleation would be recommended.

The eye was examined 3 weeks later. The anterior chamber had become shallow and the tension elevated to 17 with slight ciliary congestion.

The parents were then advised to have the eye enucleated because of a possibility that it might be harboring a retinoblastoma. The eye was enucleated on Oct. 10, 1958.

Dr. W. M. Silliphant of Armed Forces Institute of Pathology gives a gross description of the enucleated eye as follows:

*Gross.* "The iris is gray-blue in color. The pupil is irregular and is elongated in the vertical meridian. It appears to be partially adherent to the lens which is yellow-white. The sclera is not remarkable. The section is horizontal. The anterior chamber is shallow, but free of exudate. The lens-iris diaphragm appears to be displaced forward by a retrolental mass consisting of a cyclitic membrane, and portions of the largely detached retina. Inferiorly, the cyclitic mem-

brane is diffusely speckled with brown pigment, while superiorly it has a semi-translucent, mucoid appearance and is not pigmented. The cyclitic membrane appears to be firmly attached to the posterior pole of the lens, but the equatorial zone is free. The irregular shape of the pupil is due to irregular posterior synechiae. A number of prominent vascular channels are present in the cyclitic membrane as well as on the inner surface of the retina. The posterior surface of the retina presents a golden-yellow appearance and is studded with a granular exudate. Similar golden-yellow granules are sprinkled through the gelatinous subretinal exudate. Three millimeters below the disc, there is an area in which the retina is adherent to the choroid but everywhere else it is detached. Proliferation of pigment epithelium is observed around this lesion.

*Microscopic.* "The cornea is edematous. The iris root arises from the anterior extremity of the ciliary body and peripheral anterior synechiae occlude most of the trabecula on both sides. The intertrabecular spaces, however, appear patent as does the canal of Schlemm. An extremely delicate neovascular membrane is present on the anterior surface of the iris and a few delicate capillaries may be seen on the anterior surface of the lens capsule. A few ciliary processes arise from the posterior surface of the iris. Behind the lens there is a mass of exuberant granulation tissue which seems to have arisen from the completely detached and markedly distorted retina. Small areas of fresh hemorrhage are present on the anterior surface of the retina and in the region of the granulation tissue which occupies most of the vitreous. There are also a few islands of proliferated ciliary epithelium (both pigmented and non-pigmented) incorporated in the retrolental mass. (Fig. 1.) The distorted retina is thrown into many folds and these exhibit marked gliosis with replacement of the normal architec-

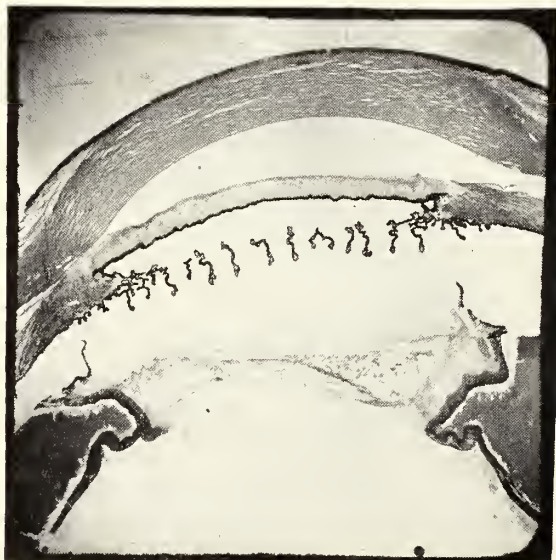


FIG. 1. Islands of proliferated ciliary epithelium and cyclitic membrane in anterior vitreous just behind lens.

\*Read at the meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, April 13, 1959, Memphis, Tenn.



tural pattern. There are also areas of serous

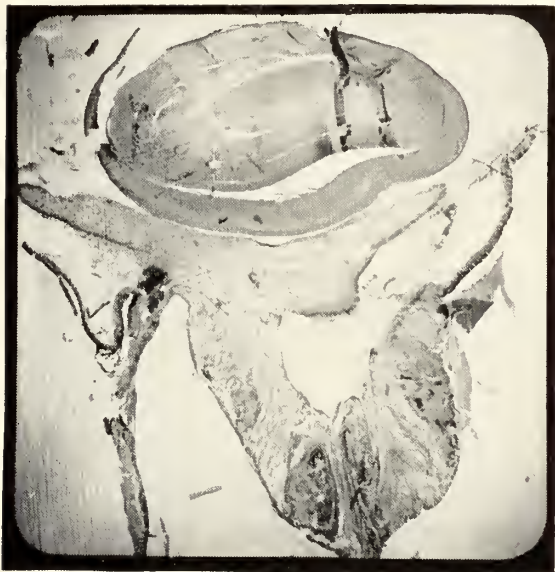


FIG. 2. Cyclitic membrane with total detachment of retina. Optic nerve head drawn forward with the detached retina.

exudation and many pigmented and fat-laden histiocytes are scattered throughout the retina. The optic nerve head is drawn forward by the detached retina. (Fig. 2.) The optic nerve exhibits severe atrophy and glial replacement. At the margins of the disc, prominent vascular channels can be traced from the choroid into the stalk of the detached retina.

*Diagnosis.* "Congenital malformation of optic nerve and retina with vitreous hemorrhage and neovascularization."

#### Comment

This case was also seen in consultation by Dr. A. B. Reese who agreed that the changes probably resulted from a spontaneous intraocular hemorrhage, secondary to a congenital anomaly of the disc with some remains of the posterior hyaloid system. In Dr. Reese's experience, whenever a part of the primary vitreous or hyaloid system remains, a spontaneous hemorrhage may occur at about the fourth month of life.

#### ACUTE DISSECTING ANEURYSM OF THE AORTA. Julian R. Beckwith, William H. Muller, W. Dean Warren, and J. Edwin Wood, Jr., *A.M.A. Arch. Int. Med.* 104:217, 1959.

Surgical correction of dissecting aneurysm of the aorta is now possible. The exact diagnosis of this condition is therefore more important than ever. The histories of 11 patients who underwent surgery have been analyzed in order to identify retrospectively the symptoms and findings most valuable in establishing the diagnosis. The most important was a history of very severe pain which usually radiated to the back and frequently moved from its original location to another area; it was more severe than the pain of myocardial infarction and particularly significant in the absence of electrocardiographic abnormalities. Roentgenograms were of critical importance in 9 of the 11 cases, especially in one instance when the aortogram showed a double-barreled lumen. A difference in the peripheral pulses was present in 6 cases. Systolic murmur, abdominal bruit, and an abdominal mass occurred in less than half of the cases, but were helpful diagnostic points when they did occur. Four of the 11 patients survived surgery and did well after operation. Although the mortality in this series was high, the risks of allowing acute dissecting aneurysm to go untreated are so great that the authors advise prompt operation as soon as diagnosis is established.

## STAFF CONFERENCE

### Vanderbilt University Hospital\*

DR. WILLIAM ORR: The illness of the patient for discussion today is difficult to categorize. The problem the patient presented and its treatment is fortunately far easier to understand. Will you tell us of the early part of her hospitalization?

DR. JACK RICE: *Present Illness:* Miss D. is a 25 year old, single woman from a nearby rural county who has been almost bedfast for the past two years. Her plight so interested people of her community that the county welfare commissioner allotted sufficient funds to permit her hospitalization at Vanderbilt University Hospital for two weeks. She was admitted on the medical service on September 22nd of this year. At the time of admission she gave a history of weakness and joint pains of seven years duration. At first, these were intermittent but for the past two years the weakness chiefly, has been almost constant and she has remained in bed. Her local physician placed her on Aristocort, 1 tablet, three times a week for the past year, and 1-2 tablets a day for the two months prior to admission. As there was no other highly significant medical history which will not be repeated in the psychiatric history, the remainder of the history will be omitted now.

*Physical Examination.* Physical examination revealed the following pertinent findings: She was a pale, cachectic white female, who appeared younger than her stated age of 25. She was apathetic but oriented and appropriate in her responses to questions. There was obvious generalized muscular wasting. The pupils of her eyes were widely dilated but equal and regular and reacted to light and with accommodation. Fundi were negative. Examination of the chest showed deformity of the cage, secondary to left scoliosis of the dorsal spine. Breasts were small but developed and without masses. Lungs were clear. Heart was not enlarged, had normal sinus rhythm, and there were no murmurs. Joints were not enlarged, nor deformed, although there was marked wasting of the musculature generally. Her neurological examination, aside from the weakness and muscular wasting, was within normal limits. There were no signs of spasticity or involvement of the cerebellar system. All modalities of sensation were intact.

*Laboratory Examinations.* Extensive laboratory examinations were carried out. Urinalysis showed no abnormalities. Blood findings were entirely within normal limits; the white blood cell count was not elevated. L.E. cell preparations were negative on three occasions. Tests for copropor-

phyrins and uroporphyrins were negative. Blood chemical studies, including sugar, chloride, sodium, potassium, calcium, phosphate, cholesterol, P.B.I., and serum proteins, were all within normal limits. Agglutinations against common organisms were negative. The cerebrospinal fluid was clear, colorless, under a pressure of 60 mm. of water and contained no white cells. The protein was 51 mg.% and Wassermann reaction was negative. EEG. and EKG., each repeated twice, were without significant abnormalities.

24 hours urine collection for steroid studies and creatinine showed the following:

Date	17 hydroxy- corticoids	17 ketos- teroids	creatinine
9/23-24	2.3 mg.	6.5 mg.	
9/24-25	2.2 mg.	7.3 mg.	*
10/1-2	2.4 mg.	2.0 mg.	200 mg.
10/5-6			651 mg.
10/7-8	18	4.2 mg.	805 mg.
(after 8 hours I.V. drip of 50 unit ACTH in D <sub>5</sub> W)			
10/8-9	18	4.7 mg.	635 mg.
(after 100 units ACTH, I.M.)			
10/9-10	20	5.7 mg.	735 mg.
(after 100 units ACTH, I.M.)			

\*Urine collection probably incomplete.

X-rays of her skull, chest, spine, ankle, knees, hands, and elbow showed marked osteoporosis of all joints and scoliosis of the spine, but no other abnormalities. Barium enema was negative.

*Course in Hospital.* Two days following admission to the hospital, psychiatric consultation was requested and I saw her daily throughout her stay on the medical service. She was tense on admission and remained so during her stay there, but was remarkably tolerant of the many venipunctures, urine collections, X-rays and lumbar punctures and cooperated willingly with all procedures.

The night of September 30 was a sleepless one for Miss D. as the patient in the next bed was critically ill and died early on the morning of October 1st. When I saw her later that morning she was highly agitated, attempting to get out of bed and demanding to go home. She was so disturbed that all (even her mother) recognized that this was impossible and after considerable discussion she was transferred to the psychiatric division.

DR. ORR: Dr. Feldberg, you saw her after admission to psychiatry?

DR. MURRAY FELDBERG: Yes I saw her shortly after admission to the psychiatric division at which time the patient was lying in bed, patiently awaiting the arrival of some of the many physicians who had been seeing her regularly during her stay in the hospital. When approached, the patient graciously motioned examiner to a seat and then listened attentively to the questions put to her. She was wearing some cosmetics, yet this did little to disguise her cachectic appearance. She had

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the air about her of one who had spent a good portion of her life in bed, and seemed to enjoy the attention she was now receiving.

The patient always had lived on a farm. She was the last of three children. She has an older sister, and had a brother who died of "polio" just prior to the patient's birth. The patient described the happiness of her childhood in general terms, recounting many incidents in which she played with her friends and classmates. All of this was told with a half smile and continually flattened affect. The patient denied poor relationships with her sister, parents or classmates. She also spoke of the pleasures she derived from studying, especially math and home economics, quickly denying that there were any subjects she disliked. When asked for the names of any teachers that might have stood out in her mind as having influenced her, the patient was at a loss to answer the question. Nor could she tell of any time while in school that was especially pleasant for her. When it was suggested that perhaps her senior year in high school might have been especially meaningful to her, she replied, "No, I don't think so, not more than any other year." Then her face brightened and she remembered that her senior year was in 1952, and that this was the beginning of her illnesses. The patient went on to explain that in 1952 she had, in rapid succession, tonsillitis, pneumonia at Christmas, and finally an appendectomy with removal of a cyst of her right ovary. She then jumped to 1954, when she had "rheumatic fever" with a long period of bed rest. During this time, the patient's sister married "a fine, young man" and the patient beamed benignly. In 1956, the patient had her second attack of "rheumatic fever" and a tonsillectomy. In 1957 she had her third attack of "rheumatic fever" and her semi-invalidism began. Up to this time, the patient explained, she had bounced out of bed as soon as her period of required bedrest was over, and she would then return to "work." Now she experienced extreme difficulty, complaining at times of weakness and poor appetite. She occupied her mind while in bed by reading *Good Housekeeping* and various other magazines of this nature. In June 1959 the patient had another attack

of "rheumatic fever," and this was followed by more or less permanent invalidism. On the few occasions that the patient left her bed, she became faint and fell to the floor, although at no time did she ever lose consciousness.

She told of her father's apparently failing mental condition and his constant refusal to work. This had necessitated the renting of their farm, and meant that the financial condition of the family had worsened. Despite the father's emotional difficulties the patient claimed that he was genuinely interested in her illness. Her mother was described as a good person who had done everything to make the patient comfortable.

DR. ORR: Thank you, Dr. Feldberg. Let us wait to hear the course of her illness until the social worker gives the social history.

MISS JANICE RICKETSON: The patient's mother, aged 55, was seen once in obtaining the social history which was secured on October 6, 1959. She was very defensive during the interview, stressing the physical aspects of the patient's problems, and normalizing the patient's emotional development, giving little significant information about the patient's infancy and early childhood. She gave the impression of being an innately intelligent person who had had very limited cultural and educational advantages.

The mother dated the patient's difficulty to 1952 when the patient was 16 years old. The patient had an appendectomy and a cyst removed from her ovary during this year. For the past nine years the patient had grown more apathetic, complained of pain in her joints and weakness. As the patient's condition grew worse she spent more and more time in bed, becoming almost completely preoccupied with her ailments. The patient had always shared a bedroom with her parents.

Mrs. D. added little to the history of the patient's early life, as was stated earlier. The patient had no difficulty in her relationships with her older sister or her peer group. No pertinent information about the patient's physical or emotional development was obtained about her pre-school years. The patient is said to have enjoyed school. She was always an "A" student and was salutatorian of her graduating class even



though she was not able to attend classes except for a few weeks during her senior year. She had never shown an interest in boys. The mother appeared to have a need to picture the patient as an outgoing type person who participated in many social activities. (Contact with friends of the patient indicates that the patient had been a shy, retiring and dependent person who engaged in few if any social activities other than her church work.)

DR. ORR: Thank you, Miss Ricketson. Will you summarize what you think of this family?

MISS RICKETSON: The history seemed to reflect that in this family the parents were overly protective and overly indulgent of the patient, but were also quite demanding in their expectation of high standards of social and moral conformity. This low-income family appears to have strong feelings about achievement and the patient's mother seems to have pressured the patient into scholastic achievements, perhaps as a means of raising the family's status. It is likely that the parents' over-protection and the mother's tendency to be dominating and controlling, may have thwarted the patient's maturation.

DR. ORR: Dr. Kirk, you tested the patient a number of times, did you not?

DR. VIRGINIA KIRK: Yes, I saw her for psychological testing on three occasions.

On the first date, September 28, the patient was quite difficult to examine. She would shut her eyes and appear to be asleep whenever questions became difficult or she became fatigued. On the second session, she still found it difficult to carry on either performance or verbal tests for any length of time.

From these incomplete examinations the patient appeared to be suffering from the effects of so-called acute brain syndrome and not something which would be irreversible.

Brief tests of intellectual functioning indicated an I.Q. level of 75. On performance tests, the patient was able to succeed with the Koh's Block Designs at this same level. On the Rohrschach test the patient named colors and gave a very vague response for Card I, but she could accept a popular interpretation of Card V. She was not truly

able to cooperate. The patient had no difficulty with sorting the Weigl-Goldstein-Scheerer Color Form Blocks.

I felt that the patient's emotional difficulties were not accessible for study at that time. I did not believe she should be pushed until she was able to endure a longer interview period without complaining of nausea and a need to vomit, as she did.

On October 8, I tested the patient a third time and there was obvious improvement in her general condition.

The Behn-Rohrschach test was administered and the patient gave 29 responses in 10 minutes. The quality of her responses was exceedingly perseverative and vague in perceptual accuracy. The patient did not fall into complete categorical traps in the way she did previously with color naming. The patient handled the test as though she had been an obsessive-compulsive individual whose illness had affected her thinking so that her perception was no longer very clear or accurate, and her emotional level of adulthood had regressed very considerably. Emotionally, the patient seemed to be a somewhat dependent individual who was able to make a relationship with people around her better than patients with acute schizophrenia. Her reactions were like those of a patient who had stabilized herself at a level of chronic schizophrenia for several years at least. Her defenses appeared to be so brittle and lacking in any real effectiveness that added emotional difficulties or physical illness could easily create catastrophic reaction which was previously obtained.

I repeated the intelligence testing to a certain extent and was able to obtain a Verbal Scale I.Q. of 92 on five out of the six sub-tests on the Wechsler Adult Intelligence Scale. The patient's performance test ability still showed some regression.

The drawings were done rather rapidly and without any evidence of anxiety. They were quite characteristic of patients with chronic schizophrenia which has become more or less stable after a number of years.

DR. ORR: Thank you, Dr. Kirk. Do we have a Nursing Report on Miss D.?

MISS DOROTHY CULPEPPER: Yes, we do. Miss D. appeared to be much younger than her 25 years, when she arrived by

wheelchair at the psychiatric division, accompanied by her sister, mother and father. Her pale, emaciated body tensed and her knees buckled as she was helped to bed. She appeared to accept her passive dependence quite placidly and showed lack of interest in her surroundings. Because of Miss D's need for continuous nursing care, a member of the nursing staff was constantly with her during the first four days. Muscles weak and flaccid from lack of activity were exercised by walking with assistance around her room. Reassurance and encouragement helped her to gain the self-confidence to take a few steps independently before she reached for the steadying arm close-by. Although she complained of aching legs while walking and held her back with one hand, her accomplishments and efforts were encouraged and supported.

On the night of admission, auditory and visual hallucinations were carefully observed. Miss D. insisted that she heard her local medical doctor in the corridor and welcomed him with arms outstretched. She continued to urge him closer as she motioned to no visible person. Calm and patient answers to her questions and explanations quieted her for a few naps during the night.

DR. ORR: Some dramatic events occurred on her second night on the psychiatric division, did they not?

DR. FELDBERG: They did. She had two severe grand mal seizures that night and a third sixty hours later. The second of these, Dr. Rice and I witnessed. It began with her head and eyes turning to the right followed by generalized convulsive movements, lasting almost thirty seconds. Following the seizures no focal paralysis of any part was noted, but reflexes generally were hyperactive and bilateral Babinskis and Hoffman could be elicited with ease. She was given soluble phenobarbital 0.12 gm. per day, intramuscularly, and started on Dilantin 0.3 gm. per day. This was continued. After her third seizure she had no more. Neurosurgical consultant found no evidence of brain tumor and felt air studies unnecessary.

DR. ORR: Miss Culpepper, was there a change in her behavior following the seizures?

MISS CULPEPPER: Most decidedly. The following day she threw her dishes at the nurse who brought her food, for she accused someone of trying to poison her. "Lead must have been put into the food," she stated, "because my arms and legs feel like they are lead." For seventy-two hours she was highly suspicious, (until the day of her third seizure) continued to openly accuse the nurses and attendants of poisoning her, and it was only with much quiet persuasion and sharing of food and liquid with her that we were able to get her to eat or drink. Gradually we were successful in helping her to come to the lounge and cook her own breakfast on the hot plate there. With this she showed more interest in eating and at the time of discharge three days ago, she showed interest in gaining weight. During the last five days of hospitalization she expressed no suspicious ideas, spent much more time out of bed and would walk a short distance before grasping on to a table or the wall. She was more interested in ward activities, and all in all, was much improved.

DR. ORR: Dr. Kirk reported the marked change in psychological testing. How did she seem in interview, Dr. Feldberg?

DR. FELDBERG: She was quite markedly different the last five days of her hospitalization. She was coherent, almost friendly, and it was during this time that I was able to obtain the facts of her history. She was not suspicious and expressed a desire to get well. I do not think it has been mentioned that she was discharged earlier than we would like, but her mother wanted her home and all sources of financial support had been exhausted. The last ten days of her hospital stay were paid for by medical school funds from the department of Medicine. She is to return for outpatient visit in ten days.

DR. ORR: Let us for a moment discard the question of the patient's diagnosis and think of the patient's problem. As Miss Ricketson, the social worker, has pointed out; this young woman was raised in a family who demanded success and conformity, and Dr. Kirk, in her testing, believes the girl to be of only average intellectual ability. Let us express this in another way. Her intellectual capacities are at about the



50th percentile. This means that half of all people including those of her local community, had intelligence superior to hers, many of them intelligence far superior; yet she was the salutatorian of her graduating class. This implies that she must have worked extremely hard to have achieved this. I would feel that, as Dr. Feldberg indicates, she welcomed illness in her senior year, which allowed her to withdraw from intimate competition with her classmates. Further, though the mother saw her as an outgoing, friendly girl, other people in the community recognized her shyness and inability to relate to other people. What better adaptation could this girl make, this shy, retiring, not very smart girl, whose family had unrealistically high aspirations for her, than to retire to her bed because of illness. This adaptation prevented her mother from showing her intense disappointments, and the patient from the unpleasantness of feared social contact.

It seems likely that her mother in her attempt to make her daughter a cause celebre, used her daughter's illness in place of achievement as means of reaching this end. She stirred the welfare department up to the point where they were willing to support her hospitalization and she was admitted to the hospital.

If we turn and look at this from the patient's viewpoint for a moment we can speculate what exciting anguish it must have been for her to be admitted to the impersonal situation of being a patient in a ward of a large hospital such as this; being an object of attention of so many new and highly sophisticated people who asked penetrating personal questions, examined her body repeatedly, and drew samples of body fluids from her every orifices, natural and

unnatural. To cap the climax this girl, who had always slept in her parents' bedroom, saw the patient in the next bed to her die.

Though we all agree hospitals can be, among other things, very upsetting places, it is rare to see such a dramatic disintegration of a patient's ego, as was demonstrated here, nor its reintegration so rapid.

The cause of her improvement may be attributed to four facts, any of which singly or in combination may be significant. (1) She has lived through the trauma of seeing the woman die and being whisked to a psychiatric ward and it was no longer necessary for her to be psychotic. (2) She gave herself "shock therapy" in the form of three "idiopathic" convulsions. (3) She was given rather large doses of ACTH. (4) She was given kind, thoughtful, but at the same time stimulating psychiatric nursing care and responded to this in an extremely positive manner. Many of us forget the importance of nursing care as a psychotherapeutic procedure, yet all of us have seen patients who have come into the hospital as disturbed as this patient was "snap out of it" within a week's time without convulsive therapy, ACTH or tranquillizing drugs.

And now we are faced with the problem of categorical diagnosis. It was suggested that she had schizophrenia by a number of people while she was on the medical service. Following this came the delusional hallucinatory episode. Psychological testing also "confirmed" this impression. I am unconvinced, however, that this young woman is habitually using the regressed defense mechanisms that are implicit in the diagnosis of schizophrenia. Only after we have seen her as an outpatient for a number of times and follow her course in a more natural environment, can we tell.

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### Postgraduate Cardiac Day Vanderbilt University School of Medicine

The Middle Tennessee Heart Association, with the collaboration of the Department of Medicine, Vanderbilt University School of Medicine, announces a Postgraduate Day for Thursday, December 3, 1959, to be held at the University Hospital beginning at 9:00 a.m. Six guest speakers, prominent nationally in the field of cardiovascular diseases, will take part in the program. Dr. Irving

Wright, of Cornell University Medical School, New York, will be the after dinner speaker. The course is approved for 7 hours of Category I credit by the American Academy of General Practice.

All physicians are invited to attend the course as guests of the Middle Tennessee Heart Association, which will charge \$10.00 to defray the costs of luncheon, dinner and social hour. For further information address the Department Postgraduate Instruction, Vanderbilt University School of Medicine.



## CLINICOPATHOLOGIC CONFERENCE

### V.A. Medical Teaching Group Hospital\*

#### Thrombotic Thrombocytopenic Purpura

F. H. Knox, M.D., and J. M. Young, M.D.

#### Case Presentation

**Present Illness.** The patient was a 37 year old Negro who was well until he developed episodes of hiccoughs 10 days prior to admission.

Seven days prior to admission he developed right posterolateral chest pain, pleuritic in nature, not too severe and unaccompanied by fever, malaise, or respiratory symptoms. This persisted and in the next 2 days the pain moved into the anterior chest and substernal region. In spite of this he continued to be up and around. Four days before admission the pain moved into the upper abdomen and the patient noted dark colored urine. There was no lumbar pain or other G.U. symptoms. On the next day the abdominal pain became worse and his hiccoughs re-appeared. He was hospitalized at another hospital, and an indwelling catheter was inserted. Wangenstein drainage was instituted after which he began to bring up fresh blood seemingly from his pharynx. The gastric drainage is said to have appeared like coffee-grounds. A serum amylase from this hospital was 320 units, and an upper G.I. series was reported negative. He received four blood transfusions in the 48-hour period prior to being transferred to this hospital. There was no family history of bleeding. There was a history of heavy alcohol intake in the past 10 years. No history of any toxic exposure could be elicited. He has worked with molten metal, but not with lead.

One previous admission to Kennedy was for recurrent epididymitis.

**Physical Examination.** T. 100.6, P. 60, R. 18, B.P. 160/90. The patient was well developed, well nourished and appeared acutely ill, but not toxic. There was fresh blood in the posterior pharynx. A grade II apical systolic murmur which did not radiate was present, and a questionable friction rub was noted in the right lateral lung fields. The abdomen was slightly distended and there were hypoactive bowel sounds. It was diffusely tender, particularly on the right side where there was some rebound tenderness. No organs or masses were felt. The prostate was slightly tender on rectal examination. There were no palpable lymph nodes. A few petechiae were noted over the left shoulder and in the right anterior axillary region. The neurologic examination was normal.

**Laboratory Data.** RBC. 3,880,000, Hgb. 11.3 Gms.%, hematocrit 34%, WBC. 8,700. Sickle cell preparation was negative. Platelets were 134,400.

The red cells of the peripheral blood showed marked poikilocytosis and anisocytosis, several target cells and spherocytes were noted and reticulocytes were 2.4%. Urinalysis-specific gravity 1,020, albumen 4+, sugar negative; microscopic 8-10 WBC., 80100 RBC., and 4+ bacteria. Sternal marrow showed a mildly hypercellular marrow, and all series were active and showed normal maturation. Megakaryocytes were present in normal numbers; they were slightly immature and no active platelet formation was seen. No megakaryocytic degeneration changes were noted. The erythroid series showed a mild to moderate relative increase. The Coombs tests, direct and indirect, were both negative. Bleeding time was 20 min. +; clotting time was 7 minutes and 10 minutes with the two tube method. Prothrombin time was 100%; prothrombin consumption-patient 30 seconds, control 60 seconds, and when repeated was, patient 27 seconds, control 110 seconds. There was no clot retraction in one hour. Tourniquet test was 1+ positive. Sputum was negative for acid-fast bacilli. Urine culture revealed *Enterococcus* species and *Aerobacter aerogenes*. The urine was negative for bile and porphobilinogen, fasting blood sugar 157 mg., serum bilirubin—one minute 0.9 mg. with a total of 4.1 mg. per 100 cc. Alkaline phosphatase was 2.8 Bodansky units, thymol turbidity, 1 unit, ceph. flocc. 3+. Carbon dioxide was 23.5, serum chlorides 94, sodium 130, potassium 3.6 mEq/L.

**X-ray Studies.** Chest, heart was not enlarged, the lung fields were clear. Film of the abdomen showed gaseous distention of bowel. Barium was scattered through the bowel. One loop of bowel in the right lower quadrant had a bizarre appearance which was difficult to interpret. A later plain film showed further progress of the barium throughout the large bowel and into the rectum.

By I.V.P. the renal shadows were somewhat obscured by gas. Excretion of dye was noted from the right kidney, the left was obscured by gas.

**Hospital Course.** During hospitalization his temperature ranged between 100 and 102 degrees. His hiccoughs were well controlled with chlorpromazine, and the abdominal pain was alleviated with Demerol. He was given hydrocortisone and prophylactic intramuscular oxytetracycline. His G.I. and G.U. bleeding continued and he was given four transfusions. He developed mahogany colored urine, and it was reported that there was oxy- and methemaglobin in the urine and plasma. A quantitative analysis was not done, but the amount was not estimated to be large. The patient had several small tarry stools and continued to show dark red blood in the Levine tube drainage. On his third hospital day he had a right sided seizure which progressed to a grand mal convulsion. Following this the patient was never rational, and was restless and combative, requiring sedation with Sodium Amytal. He was continued on I.V. fluids and had two more convulsions. On the morning of his fourth hospital day he became more comatose and had moderate

\*From the Medical and Laboratory Services of the Veterans Administration Medical Teaching Group Hospital (Kennedy), Memphis, Tenn.

scleral icterus. He had hyperpneic cog-wheel type of breathing, and his bowel sounds were hyperactive. He had a positive Hoffman reflex on the left. He was noted to move his extremities in a somewhat athetoid fashion. His extremities tended to be rather rigid and resist passive motion. He then lapsed into Cheyne-Stokes respiration and complete areflexia, and died shortly thereafter.

#### Discussion

DR. KNOX: To begin the discussion this afternoon, let us see what can be deduced from the patient's clinical course and the maze of the laboratory data presented. The acute onset of the patient's complaints with generalized evidence of bleeding from gastrointestinal and genitourinary tract along with certain laboratory findings strongly suggests thrombocytopenia in this case.

In favor of the presence of thrombocytopenia is petechiasis. Petechiae were noted over the left shoulder and in the right anterior axillary region. The tourniquet test was 1-plus positive. While this is not as positive as I would like to see, it, nonetheless, is compatible with thrombocytopenia. Petechiae and positive tourniquet test are also seen with vascular deficiencies but there is no history of such here. The report of the platelets at 134,000 is compatible with thrombocytopenia. The Damesheck method is used to determine platelet count, and the normal count by this method is 500,000 platelets or above. Therefore, there is a moderate reduction of platelet count in this case.

Another feature compatible with thrombocytopenia is prolonged bleeding time. The bleeding time is considerably prolonged here. Bleeding time is also prolonged in vascular deficiencies; however, these are almost always hereditary. There is no such history in this case. The clotting and the prothrombin times are reported as normal. These are characteristically normal with thrombocytopenia. Significant impairment of prothrombin consumption has been documented. This is primarily seen with thrombocytopenia, and with the hemophilia-like deficiency syndromes PTC, PTA and AHG. None of the latter can be suspected from the protocol; therefore the evidence is for the presence of thrombocytopenia. There is definite evidence of impaired clot retraction. This is almost specific for thrombocytopenia.

The protocol states that megakaryocytes were present in normal numbers but that no active platelet formation was seen. This might indicate that there is present a humoral substance inhibiting the formation of platelets. This phenomena may be seen with

- 1) Cases of hypersplenism
- 2) Cases of idiopathic thrombocytopenic purpura in which there are present platelet antibodies
- 3) In any of the auto-immune thrombocytopenic states such as the thrombocytopenia that may occur with disseminated lupus or in thrombotic thrombocytopenic purpura

Summarizing this facet of the case, I feel that the presence of thrombocytopenic bleeding is substantiated. On the basis of

- 1) Bleeding
- 2) Petechiae
- 3) Positive tourniquet test
- 4) Platelet reduction
- 5) Prolonged bleeding time
- 6) Normal clotting and prothrombin time
- 7) Impaired prothrombin consumption
- 8) Impaired clot retraction

The descriptive terms of mahogany or dark colored urine leads to the consideration of the presence of a hemolytic process. The story of bleeding, the presence of a mild anemia, and the use of transfusions go along with hemolysis. The slightly elevated reticulocyte count of 2.4% can either be attributed to blood loss or hemolysis. Spherocytosis, hypercellular marrow, and erythroid hyperplasia are indirect evidences of hemolysis. The presence of jaundice without bile in the urine indicates acholuric jaundice which is consistent with hemolysis. The presence of oxy- and methemoglobin in the urine and plasma clinches the presence of an hemolytic process.

If we accept the presence of hemolysis then we must decide whether it is of the hereditary or the acquired type. The absence of a hemolytic process in the family suggests to me that this is of the acquired variety; therefore, we have a patient with thrombocytopenic purpura and acquired hemolytic anemia.

If the central nervous system manifestations presented by the patient (convulsions, restlessness, irrational behavior, combative-



ness, and coma) are added to the thrombocytopenic purpura and hemolytic anemia, we now have the triad of thrombotic thrombocytopenic purpura. This condition is relatively rare. It can occur at any age. Most commonly, however, it is seen between the second and third decades. Usually it manifests itself in an acute form with death occurring from a few days to a few weeks after development of symptoms. This is the course of the case under discussion. Fever is almost constantly seen. The jaundice present is usually mild. Central nervous system symptoms are present in practically every case. These may occur early or late in the disease; they may be transient or permanent. Hemiplegia, aphasia, facial paralysis, tremors, convulsive seizures, confusion, irrational behavior, stupor, and coma are the main central nervous system manifestations.

Abdominal pain without localization frequently occurs. The outstanding histological feature is the appearance of innumerable occlusions of small caliber vessels in many organs of the body, especially the myocardium, capsular zone of the adrenal, renal cortex, pancreas, and grey matter of the brain. The involvement of the pancreas by thrombotic thrombocytopenic purpura might well be the cause of this patient's abdominal pain. The elevation of the serum amylase, the slight elevation of the fasting blood sugar, and the gaseous distention of the bowel all may well be on the basis of secondary pancreatic involvement by this condition. Manifestations of pancreatitis have been reported in several of these cases. The involvement of the kidneys, the hematuria, the chest pain, all may be readily explained by the basic disease process.

The Coombs test is almost always negative in thrombotic thrombocytopenic purpura. I have only been able to find two cases of documented thrombotic thrombocytopenic purpura with a positive Coombs test.

In summary, then, it would seem that practically all the manifestations of this case can be explained by thrombotic thrombocytopenic purpura. There are, however, some other conditions which may produce hemolytic anemia and thrombocytopenic purpura. One of these is hereditary spher-

ocytosis. In the case under discussion there is no family history to go along with this concept. In addition, hereditary spherocytosis is seldom associated with severe hemorrhagic manifestations, or, for that matter, severe thrombocytopenia.

Another condition which may manifest the combination of hemolytic anemia and thrombocytopenia is paroxysmal nocturnal hemoglobinuria. This condition is characterized by hemoglobin in the morning urine but not in urine voided later in the day. No such series of events are related in this case. In addition, spherocytes are not usually seen with nocturnal hemoglobinuria; leukopenia is the rule. Also, polyarteritis nodosa usually is a chronic disorder and not fulminating as is thrombotic thrombocytopenic purpura.

Idiopathic thrombocytopenic purpura may be accompanied by hemolytic anemia and central nervous system manifestations. This is the so-called Fisher-Evans syndrome. However, the usual course of idiopathic thrombocytopenic purpura is not fulminating, but is characterized by relapses and exacerbations. In addition, the central nervous system manifestations of idiopathic thrombocytopenic purpura are usually due to extensive cerebral hemorrhage which usually leads to death. Idiopathic thrombocytopenic purpura does not show the bizarre or transient central nervous system manifestations as does thrombotic thrombocytopenic purpura. The Coombs test with idiopathic thrombocytopenic purpura is usually positive.

The acquired or symptomatic hemolytic anemias may be confused with thrombotic thrombocytopenic purpura. The symptomatic hemolytic anemias occasionally are associated with thrombocytopenic purpura; however, these conditions usually have a positive Coombs test and the central nervous system manifestations are nil, or minimal. From the protocol, I see no evidence for chronic lymphocytic leukemia, Hodgkins disease, lymphosarcoma, sarcoidosis, or myelofibrosis. These comprise the main hemopoietic disorders which may have acquired hemolytic anemia.

Collagen diseases, especially disseminated lupus erythematosus, may manifest an acquired hemolytic anemia as well as a throm-



bocytopenic purpura. Biegelman is of the opinion that, depending where the reaction occurs in the shock organ, the resultant condition will be thrombotic thrombocytopenic purpura, polyarteritis nodosa, or disseminated lupus erythematosus, respectively. While there are some factors that may suggest disseminated lupus erythematosus, I believe that the fulminating course of the case, the prominence of central nervous system manifestations, the absence of leukopenia, the absence of an LE test, would lead me to discard these as the diagnosis. At least, it would make it impossible for me to diagnose the case as disseminated lupus erythematosus. Insofar as the consideration of polyarteritis is concerned, the fulminating history alone on this case makes me want to discard this as a possibility; in addition, there is no history of hypertension, leukocytosis, eosinophilia, hypersensitivity, arthralgia, peripheral neuritis, retinal pathology, or a remittent course.

In closing, despite the alcoholic history for some ten years, I am going to dismiss liver disease as the difficulty in this case. There does not appear to be sufficient historical, physical, or laboratory data to sanc-

tion its consideration. Therefore, my final diagnosis is thrombotic thrombocytopenic purpura.

#### Anatomic Findings

DR. YOUNG: As Dr. Knox has so nicely deduced, this is a case of thrombotic thrombocytopenic purpura. The significant gross findings at postmortem examination were petechiae in the skin, conjunctivae, and mucous membranes. An icteric tint was present in the sclerae. When the body was opened petechiae were noted in the subcutaneous tissues, muscles, and on the surface of most of the organs. About 120 cc. of clear fluid was present in the pericardial

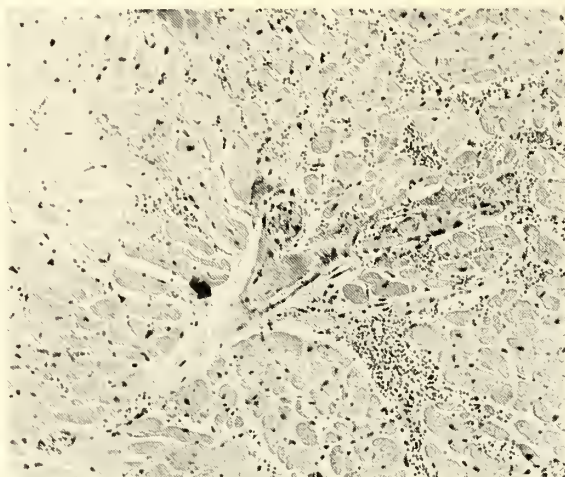


FIG. 2. Microscopic appearance of heart showing hemorrhage between muscle fibers and a centrally placed capillary filled with hyalin material.

sac. The heart weighed 360 Gm. and the epicardial surface presented numerous petechiae (Fig. 1 and 2); these were also present throughout the myocardium. The pancreas weighed 120 Gm. and was firm and



FIG. 1. Heart showing numerous subepicardial petechiae.

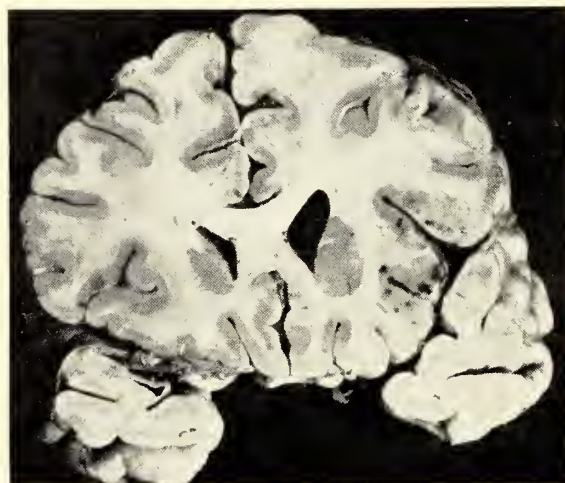


FIG. 3. Brain showing petechiae in the cortex.

deep reddish brown in color; very numerous petechiae were present throughout the substance of this gland. The left kidney weighed 220 Gm. and the right 140 Gm. Both revealed numerous petechiae beneath the capsule, in the parenchyma, and in the pelvis. The bladder contained a brownish colored urine and its mucosa presented hundreds of petechiae. The mucosa of the gastrointestinal tract likewise was studded with hemorrhagic areas; the gastric mucosa was fiery red. The brain weighed 1180 Gm. and revealed only a few petechial hemorrhages beneath the pia. (Fig. 3.) When the brain was sectioned, however, there were numerous small hemorrhages in the cortex

and a fewer number in the white matter. Other structures also showed petechiae when sectioned.

Microscopically, the tissues revealing petechiae disclosed the classic lesion of thrombotic thrombocytopenic purpura—small vessels dilated and plugged with hyalin material. There was no surrounding inflammatory reaction, but numerous small areas of red cell extravasation into the tissues about the lesions were noted. The heart, pancreas, and brain particularly revealed numerous lesions microscopically.

#### Final Anatomical Diagnoses

Thrombotic thrombocytopenic purpura.

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#### Practice of Surgery in a Neuropsychiatric Hospital.

Marchand, Walter E., A.M.A. Arch. Gen. Psychiat. 1:123, 1959.

Psychotic patients present special difficulties in both diagnosis and treatment, yet 13 years of experience in a neuropsychiatric veterans hospital have shown that the presence of a psychosis does not alter the physical signs of disease and does not preclude the obtaining of a medical history or the administration of modern therapy. In surgical cases, preoperative management includes due preparation for all the experiences in the operating room; consent to operation has been refused only in extremely rare instances, and it is no longer necessary to struggle with patients to get them anesthetized. When the cooperation of a patient is needed for operations under local anesthesia, preoperative medication generally should be minimal. The postoperative course is usually uneventful, but it is necessary to remember that the psychotic patient seldom complains of pain, is not likely to be careful with tubes and catheters, cannot be counted upon to cough up secretions, and may attempt ambulation too soon. The psy-

chiatric behavior of the patient is especially important in orthopedic surgery because splints, casts, and traction apparatus may be tampered with or misused as lethal weapons by assaultive or suicidal patients. Trusses, braces, colostomy bags, and ambulatory urinals are unsuitable for most psychotic patients, and with patients potentially suicidal the triangular bandage, the elastic bandage, lengths of roller bandage or adhesive tape, as well as clips or safety pins, must be avoided. Difficulties with urination and defecation have frequently been found to be an expression of the psychosis itself, but the two functions interfere with each other in the sense that a greatly distended bladder has at times been found to prevent evacuation while in other cases fecal masses in patients with megacolon have caused urinary retention. Cataract extractions have been successful in 19 psychotic patients, with definite changes for the better in 10 patients whose improved vision greatly increased their capacity for self-care. The presence of a full-time surgeon in a neuropsychiatric hospital has been shown to result in a low surgical mortality rate; it also is reassuring to the patients and their families.



## President's Page

### THE FORAND BILL (HR 4700) WHAT WILL YOU DO ABOUT IT?



HARMON L. MONROE

Undoubtedly, one of the most important meetings ever conducted by the Tennessee State Medical Association was held on November 15th at which time the Legislative Committee of TSMA, along with the officers of the Association, presented the facts about the Forand Bill and the job that is ahead for organized medicine to perform, if we are to prevent this bill from becoming law. It is a socialistic measure through and through.

The Forand Bill would amend the Social Security Act so as to provide insurance against the cost of hospital, nursing home and surgical services to all those eligible for old-age and survivors benefits. Fifteen million persons would be eligible in 1960.

The benefits—would enable each eligible person to be insured against the cost of hospital care, including a semi-private room and all hospital services, medical care, drugs and appliances which hospitals usually furnish to bed patients. Skilled nursing home services would be covered if the patient is transferred to a nursing home from the hospital. Care in a nursing home could be extended so that up to 120 days of combined care would be provided in a twelve month period, but only sixty days could be used for hospital care.

The bill would provide payment for the cost of surgical services provided in a hospital, or in an emergency, in the out-patient department of the hospital or in a doctor's office. The program would be administered by the secretary of the Department of Health, Education and Welfare.

Since the beginning of this century, revolutionary advances in medicine and better medical care have increased the life expectancy of the average American by 20.5 years. The proposed legislation would result not in better, but in poorer health care for the people of this country.

The TSMA meeting conducted by the Legislative Committee was a great effort to stimulate the medical and allied professions in Tennessee to awaken doctors to contact their Congressmen while they are at home and express their views about the Forand type legislation. Many of our colleagues do not realize the tremendous impact that such a bill would have upon the free enterprise system of medicine and what it would actually mean to every doctor individually, as well as the public. Forand type legislation is another entering wedge which, if adopted, there would be no turning back to the type of practice that we know is best for the citizenry of this nation.

Doctors must become acquainted with their Congressmen. They should contribute financially to his campaigns and to express interest and personal appreciation to the Congressmen for aid to medicine where it has been rendered. I cannot stress too strongly the necessity for county medical societies to invite Congressmen to appear at their meetings, for doctors to associate with their Congressmen and to cultivate his interest in medical problems. In order to do this, our members must be thoroughly informed of the issues.

Assume your rightful role as an intelligence age group are the responsibility of the medical profession. Remember—that health problems of anynt, informed and thinking American Citizen.

*H. L. Monroe, M.D.*



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NOVEMBER, 1959

## EDITORIAL

### CHEMICAL LUFTWAFFE

Pliny, the Elder, who suffered from chronic bronchial disease, died in 79 A.D. following the inhalation of pollutants in the air, subsequent to the eruption of Vesuvius.

Since that day there has been an appreciation and recognition of the role played by contaminated air in the production of disease. As crowding in urban areas has increased, as massive buildings, each taller than its predecessor are erected, as the number of automobiles, diesel engines, incinerators, and coal-fired power plants are increased the pollution of the air is established as a public health problem of increasing proportions.

In 1948, a four day smog settled over Donora, Pennsylvania, producing in 42.7 per cent of the population of 13,000, various symptoms ranging from mild respiratory symptoms to abdominal pain, splitting head-

### A.M.E.F.

#### DID YOU KNOW?

*That tuition pays only 18.2% of the cost of a medical education?*

*That the medical school absorbs approximately 30%-40% of the university budget while graduating less than 10% of its students?*

*That reliance on federal rather than private support will result ultimately in federal control of our medical schools?*

*That a positive expression of concern over the financial plight of the medical schools by America's doctors can result in increased support by commerce and industry?*

*That each gift is important as we strive to reach the goal of 100% participation in giving to help medical education?*

#### ONE GIFT TO AMEF . . .

#### ACCOMPLISHES MANY THINGS.

*Your dollars help to offset the \$10,-000,000 annual operating deficit of our medical schools. Your dollars deny the need for federal aid. Your dollars illustrate to others the concern of the medical profession over the financial plight of its schools. Your dollars help pay back 80% of the cost of your education which tuition did not pay.*

ache, vomiting, and hemoptysis. Twenty people died during this time. In 1957, nine years later, a follow-up of 4,092 persons originally affected, showed a higher mortality and prevalence for cardio-respiratory illness than populations living outside this area. In London lung cancer death rates were markedly higher (10 times) than in the population living in rural areas. This corresponds to the concentration of 3:4 benzpyrene in the air in urban areas as opposed to the air content in the country side.

In California skin cancer was produced in mice by painting the skin with a benzene solution of extracts of natural smog. The same group of investigators exposed mice to ozonized gasoline in an inhalation chamber for 52 weeks and produced pulmonary tumors in 80 per cent. This fits in with the

demonstration that pulmonary cancer occurs in 52 per 100,000 men who smoke and live in cities, while in provincial dwellers only 39 per 100,000 are similarly affected.

The problem of smog in California is a real one. In Los Angeles county there are 2,500,000 registered automobiles which use 4,600,000 gallons of gasoline daily. Of this volume 7 per cent is poured unconsumed into the atmosphere daily. A survey indicated that two-thirds of the population has been visibly affected by the smog.

In Greater New York an average of 67.7 tons of soot per square mile, containing an estimated 1,500,000 tons of sulfur dioxide, fell each month in 1957, while in Manhattan proper 102 tons were calculated to have fallen. Sulfur dioxide affects growing plants in 0.25 parts per million, and in amounts of 2 parts per million will annoy human beings.<sup>1</sup>

Ozone and other polycyclic hydrocarbons which result from the photochemical oxidation of hydrocarbons present, as a result of the partial combustion of gasoline and diesel oil, not only may cause respiratory symptoms in the human but also destroy plant leaves, reducing the growth rate of seedlings, cause cracking of rubber and paint, and such practical horrors as the disintegration of nylon stockings.

In addition there are special problems which exist in areas adjacent to plants which use beryllium, or in the neighborhood of atomic inspired explosions.

The chemical industry is spending \$40,000,000 yearly and the automotive industry \$5,000,000 in attempts to eliminate the harmful hydrocarbons in gasoline and from diesel oil exhausts. Air pollution is estimated to cost the city of New York \$100,000,000 yearly. Crop damage in the Los Angeles area in 1957 was estimated at \$5,000,000. At the World Health Organization sponsored Geneva Conference in 1958, air pollution was recognized as the greatest and most urgent environmental problem facing the people of Europe.<sup>2</sup>

We, in Tennessee, are spared for the most

part the disagreeable problems discussed above. As our country-side is encroached upon by industrial progress, these problems will become our problems also. We should encourage, therefore, the development of chemical and engineering methods aimed at improving combustion and at reducing the particulate matter in stock gases, in fly ash, and in motor exhaust gases. We should encourage local governments to create and enforce the laws that can help with this problem. Certainly there are wide areas in Nashville for example which, in the winter time in particular, are obviously guilty of being contaminated areas. This must be true of other Tennessee cities. The medical profession must take part in the crusade to clear the skies of a "chemical luftwaffe."

A. W.



#### THE FORAND BILL AND THE HOSPITALS

In the testimony given on the Forand Bill before the House Ways and Means Committee some months ago appeared that by Dr. Frank S. Groner, of Memphis, President of the American Hospital Association. He presented the official policy of that organization and categorized the thinking under three headings.

*"First, that the government as a purchaser of so much hospital care would exert the power of the purse in ways detrimental to the interests of hospital patients."* Dr. Groner elaborated this point by indicating that the Government, as a major purchaser of hospital care and thus concerned with costs, would of necessity be concerned with such costs and the operation of hospitals which by pressures and influence might interfere with the quality of care of patients.

*"Secondly, that there is a real danger the provision by government of prepaid hospital benefits would lead to over-utilization that could not be controlled and thus to runaway costs, with consequences that could be disastrous to hospitals and the public."* The probable overuse of hospital beds for elderly patients, who need nursing home care or for unindicated prolongation of care, will over-tax hospital facilities and pinch available beds for acute disease as well as lower efficient nursing care of such cases. This is not a theoretical assumption. It has been

<sup>1</sup> Report on Air Pollution and Health. Committee on Public Health, New York Academy of Medicine. Bull. New York Acad. Med. 35:490, 1959.

<sup>2</sup> Barach, Alvan L.: Air Pollution and Health, Idem, page 493.



amply demonstrated in certain communities in Tennessee with the hospitalization by the Tennessee Department of Public Welfare of persons receiving public assistance and has led to action of the Tennessee State Medical Association as discussions with this Department. The Forand Bill would multiply the current experience and on a nationwide scale.

*"Third, that the acceptance of compulsory health insurance for one group of the population would foster its extension to other groups, and perhaps ultimately to the whole population."* Of this, Dr. Groner points out, there cannot be any doubt, because those groups backing the Forand Bill have in the past strongly supported compulsory health insurance for all. No realist looks at the Forand Bill as an isolated piece of legislation, but truly as the first of a series of steps for compulsory health insurance. (Actually, if one considers the hospitalization of those receiving Welfare benefits, the Forand Bill is the second step.)

The Bill contains certain statements which propose to be safeguards as, . . . "No agreement could be made with any federal hospital or any hospital which provides services at public expense"; and "disclaims prohibiting supervision or control over the practice of medicine and the administration or operation of hospitals and nursing homes."

No one takes such safeguards seriously since any Congress can change the provisions—one need only to look at the many changes already made in the original Social Security Act, of which the Forand Bill would be one. Anything can happen if the political pressures are right.

In the last issue of this *Journal* the British Health Service, after a decade, was discussed on these pages. Your Editor had the opportunity to explore briefly this past summer another instance of the results of governmental influence in changing a pattern of medical practice.

A social security program has been present in Peru since 1935, whereby employer and employee contributed to a health insurance program which reimbursed the doctor for services in the office, home or hospital. (All governmental employees fall

into the scheme.) Any hospital could be used for hospitalization just as noted above in the Forand Bill. (Members of employees' families do not fall into the plan except for obstetric care and care of the newborn.) In an "about-face" a sparkling new 1000-bed hospital has been completed at a cost of some \$15,000,000, of the recent pattern of structure, reminiscent of our new V.A. Hospitals. (I spent several hours in the hospital.) The equipment is of the latest quality and present in quantity, as for example, 60 incubators for premature babies. The items of interest, however, and pertinent to this discussion is that after the hospital was completed it was decided it could be run most economically by a "closed staff." Thus, some 600 physicians and about three dozen dentists only, have rights in the use of the hospital and the ultra-modern outpatient clinic. Though the physicians outside the pale still may see patients as before (thus nominally still permitting free choice of physicians) the hospitalization in hospitals other than the *Hospital del Seguro Social del Empleado* has limits imposed on monies to be expended. What is happening is a shift of patients in this health insurance plan from the doctors of Lima, Peru, generally, to the offices and care of the doctors of the closed staff of the new hospital. The medical profession now is split into two camps, one, the closed staff of the new hospital, the other, the remainder. In effect they are not speaking to each other. This seems to be the story as best I could obtain it with some difficulties in language.

This story reminds me that anything might happen. With extension of federal health insurance one need merely visualize, as some future date, a Congressman suggesting that empty beds in V.A. Hospitals be allotted to beneficiaries under Social Security. Why not! A good plea might be made for economy, up-to-date facilities, a staff on the ground, and a host of other arguments.

No matter what the safeguards may be in the Forand Bill, when and if passed, they are good only so long as Congress does not change its mind.

R. H. K.



## DEATHS

**Dr. Lucius Edward Burch, Sr.**, 85, Nashville, died October 15th at his home, from heart failure. Dr. Burch was a nationally recognized obstetrician, gynecologist and teacher. In 1945, he retired as chairman of the Vanderbilt University School of Medicine's Department of Obstetrics and Gynecology.

**Dr. George Thomas Wilhelm**, 69, Knoxville, died October 16th in a Knoxville hospital. He was the former coordinator of the University of Tennessee Memorial Research Center and Hospital in Knoxville.

**Dr. Watson Weatherton Leonard**, 84, Sweetwater, died October 16th at the Sweetwater Hospital.

**Dr. Lewis Wilkins Culbreath**, 91, Stanton, died October 4th at a Jackson Nursing Home.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Roane County Medical Society

The Society met in the dining room of the Oak Ridge Hospital at 7:30 p.m. on the evening of October 27th. The scientific program was presented by Dr. E. F. Oakberg, Biology Division, Oak Ridge National Laboratory. Dr. Oakberg's subject was "Radiation Effect on the Gonads." A dinner preceded the scientific presentation.

### Nashville Academy of Medicine and Davidson County Medical Society

The Society conducted its regular monthly meeting on October 13th at the Vanderbilt University Hospital. A dinner preceded the meeting in the cafeteria at 6:45 p.m.

The scientific program consisted of a paper entitled "Problems of the Aging" by Dr. Alvin Keller, chairman of the Academy's Committee on Aging. He reported on the committee's findings and recommendations regarding such aspects as nursing homes, hospital and custodial care of this group; retirement plans, legislation, insurance, financing medical care, para-medical agencies' services and local, state and national programs.

### Knoxville Academy of Medicine

The Society held its monthly meeting in the Academy of Medicine building on the

evening of October 13th. An interesting presentation was made by the program committee which consisted of a discussion entitled "The Relationships of Medicine and Religion." Rev. Julian Spitzer, Rev. Sterling McGuire and Rabbi Meyer Marx participated in the discussion.

### Chattanooga-Hamilton County Society

A special presentation of the Society was the Tennessee Valley Medical Assembly conducted at the Read House Hotel in Chattanooga on September 28-29. Nationally known guest speakers presented papers of outstanding importance to those in attendance. A complete review of this meeting was presented in the October issue of the Journal under the heading Medical News in Tennessee.

The Society's meeting of October 6th consisted of a paper entitled "Current Evaluation of Adrenal Steroids in Clinical Medicine" by Dr. Joseph Bunim, Clinical Director, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Maryland. The meeting was conducted in the Interstate Building.

### Memphis-Shelby County Medical Society

The Society conducted its regular session on the evening of September 1 at the Institute of Pathology. The scientific program consisted of a panel on anemia with particular reference to iron deficiency anemia, moderated by Dr. L. W. Diggs. "Anemia As a Presenting Sign In Abdominal Surgical Conditions" was discussed by Dr. L. W. Diggs. "Nutritional Anemia In Infancy" was discussed by Dr. Gene L. Whittington. "Hereditary Iron Deficiency Anemia" was discussed by Dr. Alys Lipscomb. "Simple Achlorhydric Anemia" was discussed by Dr. Charles L. Neely. "Iron Deficiency Anemia, Not Responsive To Iron Therapy" was discussed by Dr. Gerald I. Plitman. Following the formal presentation, numerous questions submitted by the audience were discussed by the panel members.

### Dickson County Medical Society

Members of the Dickson County Medical Society met in session on September 29th at Dickson to hear four Nashville doctors discuss "Myocardial Infarction." The lec-

turers included Dr. F. Tremaine Billings, Dr. William Card, Dr. James Thomasson and Dr. George Mann. The meeting was held at the Montgomery Bell Inn and doctors from several adjoining counties attended.

## NATIONAL NEWS

### (From the AMA Washington Office)

The U. S. Chamber of Commerce and two key Congressmen, all opponents of the so-called Forand Bill, recently issued separate warnings that an all-out effort will be made to get the controversial legislation through Congress next year.

In its weekly report to members, the Chamber predicted there will be "a powerful attempt" in the next session of Congress to enact the bill (H.R. 4700) which would increase social security taxes to help pay for the cost of the Federal government providing surgical and hospital care for social security beneficiaries.

The Chamber warned that passage of the legislation would mark "a major breakthrough into the welfare state." It "probably would lead to a compulsory Federal program providing complete medical care for everyone," the Chamber said.

There would be "no stopping" of such a program once it got started, the report said.

The Chamber called upon communities to find orderly solutions to the problems of the aging. Otherwise, solutions "will surely be imposed from Washington" the report added.

Similar warnings were voiced by Reps. Richard M. Simpson (R., Pa.) and Thomas B. Curtis (R., Mo.), key members of the House Ways and Means Committee where the bill was put on the shelf last session.

Rep. Curtis urged that the medical profession and other leading opponents make a strong counter-drive in an all-out effort to block passage of the bill next session. Unless there is such action, he said he would have to "regretfully" predict that legislation along the lines of the pending bill probably will be enacted in 1960.

Rep. Simpson said that H.R. 4700, and similar legislation affecting the medical pro-

fession, "makes it imperative that every doctor keep informed on legislative issues before Congress." He also urged that physicians "become patriotic political forces" by giving "their informed viewpoint" to lawmakers at all levels of government.

Rep. Simpson said it "is important" that opponents of H.R. 4700 develop "appropriate alternatives" to solve the health care needs of the aged.

He promised to continue to cooperate with the medical profession to guard "against the disastrous consequences of compulsory national health insurance."

"House Democratic Leader John McCormack of Massachusetts expressed hope that Congress next year will stamp final approval on another bill of particular interest to physicians. He praised the Keogh-Simpson bill (H.R. 10) as 'meritorious legislation' and said it 'should be enacted into law next year.'" The measure, which was passed by the House last spring but left hanging in the Senate Finance Committee, would provide income tax deferrals for self-employed persons setting aside money for private retirement plans.

A National Republican Committee on "Program and Progress" proposed a far-reaching health program to be carried out by the Federal government in partnership with states and local governments.

Its goals would include: enlarging the capacity of medical schools so that 3,000 more doctors could be graduated each year, providing more hospital and nursing home beds, and supplementing hospital facilities with clinics, day-care centers and more visiting nurses to care for patients in their own homes.

The progress of medical science would be furthered by continued Federal support for basic medical research. But such Federal support would be given under conditions to encourage maximum non-Federal spending on medical research and to prevent "too great a diversion . . . of doctors required for the equally urgent needs of teaching and medical practice." It was estimated that expenditure of \$1 billion a year—equally divided between the Federal Government and non-Federal sources—would be required by 1965.

Other recommendations included: vigor-



ous Federal support of preventive health programs, and expansion and greater flexibility of voluntary health insurance programs.

"A free people and a free medical profession can achieve these goals with the wise support of government, without bureaucratic restrictions or interference with the physician-patient relationship which has made American health services a model for the free world," the Republican Committee stated.

The Committee proposed a five-point "partnership" program: (1) short-term Federal aid for construction of medical school buildings, (2) changes in the present hospital construction program to encourage renovation and repair of outmoded hospitals, (3) Federal guarantees for mortgages to finance construction of private nursing homes on a basis assuring high standards of quality in construction and operation, (4) encouragement of construction of diagnostic and outpatient facilities in rural areas and the building of mental health clinics, and (5) Federal aid to cities "in more effective planning and coordination of health services."

### Federal Employees New Health Insurance

Over seventy-five percent of federal employees are expected to sign up for the voluntary health insurance program approved by Congress shortly before it adjourned this year's session.

The program will get underway July 1 with more than 4½ million federal workers and members of their families eligible for coverage.

The civil service commission will contract with various health groups and insurance companies for basic and catastrophic hospitalization and medical care. The government will pay half the cost of the basic coverage, expected to be about \$13.50 per month per family. The total annual cost to the government is estimated about \$107 million.

The AMA endorsed the program in principle.

Other legislation supported by the AMA and left pending in the Senate would extend the coverage to an estimated 250,000

already retired federal workers. Prospects for passage next year appear likely.

## MEDICAL NEWS IN TENNESSEE

### Health Insurance Coverage

The Health Insurance Institute recently reported that the South has 57.8% coverage with nearly 31 million insured persons out of the 53 million residing in the 16 regional states of Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, Texas and Oklahoma.

The leading state in the Southern regional group is Delaware with 75.8%. Other top states in the area are West Virginia—71.8%, Oklahoma—66.9%, Maryland—64.1% and Tennessee—62.0%.

Tennessee is included among those states that have 50 to 75% of their civilian population covered by some form of voluntary health insurance protection.

### Tennessee Valley Medical Assembly Had 1301 in Attendance

Final official figures of attendance to the Seventh Annual Tennessee Valley Medical Assembly showed that a total of 1,301 had a part in the proceedings. There were 290 local doctors; doctors from other localities, 324; interns and residents, 78; attending the nurses institute, 158; those registered from outside of Chattanooga by the Woman's Auxiliary, 115; exhibitors, 176; wives of local doctors, 160.

### Tennessee Public Health Association

Nearly 800 public health doctors and other workers from over the state convened in Nashville on September 30th for the 20th annual convention of the Tennessee Public Health Association. The basic theme of the conference, centered around polio and air pollution. Participating in the meeting were: Dr. Robert W. McCollum, Yale University School of Medicine, New Haven, Conn.; W. W. Stalker, air pollution engineer, Robert A. Taft Engineering Center, Cincinnati; and T. M. Divine, public relations department, Tennessee Eastman Company, Kingsport.



Other physicians participating in the sessions included Dr. J. B. Black, Murfreesboro and Dr. Francis H. Deter, chief of psychology services, VA Hospital, Murfreesboro.

### **Tennessee Division—American Cancer Society**

The Society met for its annual meeting on October 16th at the Andrew Jackson Hotel in Nashville. Dr. Hollis E. Johnson of Nashville, Chairman of the professional education committee, moderated the panel. Other members of the panel included Dr. Charles E. Haines, Nashville who discussed "Cancer of the Genito-Urinary Tract"; Dr. J. H. Bowen, radiologist of Maryville whose subject was "Use of X-ray in Diagnosis and Treatment of Cancer"; and Dr. Robert N. Buchanan, Jr., Nashville dermatologist, who spoke on the subject "Cancer of the Skin."

Group conferences on the general theme, "Saving Lives From Cancer, Through the Unit Service Program," were conducted.

### **Tennessee Academy of General Practice**

At the 11th annual session of the TAGP which convened in Nashville on October 8-9 at the Hermitage Hotel, a number of outstanding speakers addressed the group. In addition to the scientific papers presented and reported in the October Journal, were papers presented by Dr. John R. Heller, director of the National Cancer Institute and Dr. L. E. Robbins, director, Cancer Control Program, U. S. Public Health Service.

Another highlight of the meeting was the election of new officers and directors. Dr. E. L. Caudill, Jr., Elizabethton, assumed the office as president and Dr. John L. Armstrong of Somerville was named president-elect. Dr. William K. Owen, Pulaski, took office as vice-president and Dr. Irving R. Hillard was re-elected for another year as secretary-treasurer.

Directors elected were: Dr. Spencer Y. Bell and Dr. Eugene M. Ryan from East Tennessee; Dr. John S. Derryberry and Dr. W. W. Wilson from Middle Tennessee; and Dr. Thomas W. Johnson and Dr. Arthur W. Green from West Tennessee.

Delegates named to the American Academy of General Practice were Dr. Ralph E. Cross of Johnson City and Dr. Julian K.

Welch, Jr. of Brownsville.

Dr. H. L. Monroe, Erwin, was named speaker of the Congress of Delegates and the vice-speaker elected was Dr. Julian K. Welch, Jr.

A highlight of the meeting was the selection of Dr. John P. Lindsay of Nashville as the General Practitioner of the Year. His selection will be forwarded to the American Medical Association for consideration of the Outstanding General Practitioner of the Year for the AMA.

### **Vanderbilt University School of Medicine**

Memorial gifts totaling \$2800 have been allocated by the Middle Tennessee Heart Association for cardio-vascular surgical research in the department of surgery at Vanderbilt University School of Medicine.



The Vanderbilt School of Medicine is one of 18 medical schools in the nation selected to share in a \$400,000 loan fund for interns and residents established in honor of the late George W. Merck.

Such funds can be lent to the graduates of Vanderbilt Medical School or to interns or residents desiring to continue their postgraduate work at Vanderbilt.



Dr. C. Sidney Burwell, Samuel A. Levine Professor of Medicine at Harvard University, has been appointed the first Hugh Jackson Morgan Visiting Professor of Medicine at Vanderbilt University. The visiting professorship will provide the Vanderbilt medical students a week of instruction each year by one of the nation's leading physicians.

The funds for the Visiting Professorship have been contributed in honor of Dr. Morgan by former house officers, fellow faculty members and friends upon the occasion of his retirement in 1958. Dr. Burwell who was in residence at the school from October 26 to 31, was Professor and Head of the Department of Medicine at Vanderbilt from 1928 to 1935.

### **University of Tennessee College of Medicine**

A postgraduate program in allergy for physicians was held by the University of

Tennessee College of Medicine on November 5-6 at the Medical Surgical Building. The program covered fundamentals of allergy as well as recognizing and management of allergic diseases.

★

Dr. Daniel Franklin Beals has been appointed to the University Hospital staff as associate professor of pathology and associate pathologists.

★

Dr. Richard C. Moon, formerly on the staff of the University of Missouri, has joined the University of Tennessee Medical Units as assistant professor of physiology.

★

The department of urological surgery of the University has been awarded a \$5,400 grant by Warner-Chilcott Laboratories. Studies of effectiveness of mandellamine in treatment of chronic pyelonephritis will be made. The department of medicine is co-operating in some phases of the study.

### **Dr. Oscar S. Hauk Honored**

On October 16, Dr. Hauk was honored by a dinner at the Andrew Jackson Hotel on the twentieth anniversary of his superintendency of Central State Hospital. The surprise dinner was sponsored jointly by the staff of the Hospital and the staff of the Department of Mental Health. More than a hundred close friends and associates attended the dinner. Mr. Henry Hughes, of the Department of Mental Health acted as toastmaster. Dr. Lawrence White, assistant superintendent of Central State Hospital reviewed Dr. Hauk's long and busy life in an interesting and often amusing fashion. Dr. Joseph J. Baker, Commissioner of Mental Health paid tribute to Dr. Hauk's conscientious and excellent stewardship of Central State Hospital over two decades. Finally, Mr. William Snodgrass, State Comptroller represented Governor Ellington, in his absence, in the presentation to Dr. Hauk of a Commission as Colonel Aide-de-Camp to the Governor.

### **American College of Physicians**

The Regional Meeting of the Kentucky and Tennessee members was held in Nashville at the Hermitage Hotel on October 31; presiding were Doctors Sam A. Overstreet,

of Louisville and Governor for Kentucky, and R. H. Kampmeier, Nashville, Governor for Tennessee. Dr. H. Marvin Pollard, of Ann Arbor, Michigan, and Regent of the College was the after-dinner speaker and spoke on "The Responsibility of The American College of Physicians to Foreign Trainees."

The meeting was attended by over a hundred members. Doctors J. Lanier Wyatt and Frederic E. Cowden made arrangements for the successful meeting. The Program Committee of Doctors Addison B. Scoville, Jr., Chairman and Carl A. Hartung, I. Frank Tullis and Frank London with the Committee from Kentucky provided the following program:

"Infarction of the Bowel in Cardiac Failure," by Dr. Norman Ende, Nashville; "The Changing Concept of Hypochromic Anemia," by Dr. Gerald I. Plitman, Memphis; "Chemotherapy of Cancer," by Dr. Richard C. Sexton, Knoxville; "Treatment of Tetanus with I.V. Sodium Amytal," by Fred D. Ownby, Nashville; "Uropepsin in the Differential Diagnosis of Gastrointestinal Bleeding," by Dr. Alvin J. Cummins, Memphis; "Acute Pancreatitis in Patients Receiving Chlorothiazide," by Dr. Allen L. Cornish, Lexington, Ky.; "Pheochromocytoma (Case Presentation)," by Dr. Leslie H. Winans, Ashland, Ky.; "Splenic Pancytopenia Associated with Chronic Arthritis," by Dr. Karl C. Kelty, Lexington, Ky.; "The Malignant Carcinoid Syndrome with Drug Induced Pyridoxine Deficiency" by Dr. Louis Y. Peskoe, Louisville; "The Biochemical Aspects of Drug Sensitivity," by Dr. Thomas D. Stevenson, Louisville.

### **Tennessee Society of Internal Medicine**

A meeting was held at the Hermitage Hotel on the forenoon of November 1. After the transaction of business affairs, the members listened to a most interesting address by Mr. Wayne Conwell of St. Louis, on "Eight Major Problems in the Practice of Internal Medicine." Dr. E. Wayne Gilley, Chattanooga, is President, Dr. Addison B. Scoville, Jr., Nashville, was elected as President-elect, Dr. Carl C. Gardner, Columbia, was re-elected as Secretary-Treasurer, and Doctors Joseph Johnson, Chattanooga, Harrison B. Shull, Nashville, and I. Frank Tul-



lis, Memphis, were elected to the Council to fill the places of Doctors Joseph W. Kyle, Richard C. Sexton, Jr., and Clarence C. Woodcock, who were retired from the Council.

## PERSONAL NEWS

**Dr. W. K. Owen**, Pulaski, has been named vice-president of the Tennessee Academy of General Practice.

**Dr. R. Graham Fish**, Paris, has been named vice-president of the Tennessee Chapter of the American Cancer Society.

More than 100 physicians and state officials attended a testimonial dinner recently in Nashville for **Dr. Oscar Hawk**, Superintendent of Central State Hospital, Nashville.

**Dr. Taylor Rayburn, Jr.**, formerly of Columbia is now associated with **Dr. W. C. Keeton** in the practice of medicine at the Boyce Clinic in Hohenwald.

**Dr. John M. Higgason**, Chattanooga, has been elected to the Board of the Tennessee Division of the American Cancer Society.

**Dr. Edward Cutshaw** announces the opening of his office for the practice of medicine in Clarks-ville.

**Dr. William E. Gibbons**, Rogersville, has left for Philadelphia where he will do graduate work at the University of Pennsylvania for the next nine months.

**Dr. Ralph O. Rychener**, Memphis, was a recent honor guest at the forum-luncheon of the Memphis and Shelby County Bar Association.

Memphis surgeons attending the meeting of the American Society of Plastic and Reconstructive Surgery in Miami were: **Dr. Anthony P. Jerome**, **Dr. Leigh K. Haynes**, **Dr. Lorenzo H. Adams**, and **Dr. McCarthy De Mere**.

Physicians attending the scientific sessions of the American Heart Association in Philadelphia were: **Dr. John W. Avera**, **Dr. Frank London**, **Dr. R. B. Wood** and **Dr. J. E. Acker**, all of Knoxville. **Dr. E. P. Muncy**, Jefferson City, also attended the conference.

**Dr. James M. King**, Tullahoma, has been appointed to a three-year term on the University of Tennessee Development Council.

**Dr. C. C. McClure, Sr.**, Nashville, has been appointed radiologist of the new Sumner County Memorial Hospital.

**Dr. Arnold Meirowsky**, Nashville, has been selected by the Army to edit the first in a series of text books being prepared to instruct doctors in the treatment of mass casualties.

**Dr. Dexter L. Woods, Jr.** is now associated with the Cullen C. Woods Memorial Hospital in Waynesboro.

**Dr. Dorothy Brown**, assistant professor of sur-

gery at Meharry Medical College, has been inducted into the American College of Surgeons.

**Dr. Don L. Gaines** has been made a member of the staff of the Jellico Hospital.

**Dr. Sue Welch Johnson**, Brownsville, is now associated with her brother **Dr. Julian K. Welch**, in the practice of medicine.

Seven Memphis doctors were recently admitted to the American College of Surgeons. They are: **Drs. James L. Alston**, **William F. Andrews**, **Robert B. Jamieson, Jr.**, **William H. Morse**, **Stephen A. Pridgen**, **Walter A. Rentrop** and **William E. Rentrop**.

**Dr. Tom Wood** has joined the staff of the East Wood Clinic and will be associated with **Dr. E. P. Mobley** and **Dr. Joe Mobley** in the practice of medicine in Paris.

**Dr. Wm. F. Outlan**, Somerville, has been named the official delegate from the AAGP to the first congress of the College of Medical Practice of Austria.

**Dr. Walter T. Hughes, Jr.**, Cleveland, has announced the opening of his office for the practice of pediatrics at the Cleveland Clinic.

Nashville physicians recently inducted into the American College of Surgeons are: **Drs. Anderson P. Harris**, **Jackson Harris**, **Robert E. McLellan**, **Sam E. Stephenson, Jr.** and **Kirkland W. Todd, Jr.**

**Dr. Guy M. Francis**, Chattanooga, has been named president of the Tennessee Section of the International College of Surgeons. **Dr. Leo Record**, also of Chattanooga, was elected secretary. **Dr. Wm. G. Stephenson** is the regent of the college from Tennessee.

**Dr. James G. Hughes**, Memphis, was a speaker at the annual meeting of the American Academy of Pediatrics in Chicago.

**Dr. Albert W. Diddle**, Knoxville, has been named to the executive committee of the Central Association of Obstetricians and Gynecologists.

**Dr. Evert E. Kuester** and **Dr. Herbert J. Michals** have announced the opening of an office for the practice of medicine in Sullivan Gardens, Kingsport.

Taking active part in the clinical congress of the American College of Surgeons recently in Atlantic City were: **Dr. Harwell Wilson**, Memphis; **Dr. Edward Storer**, Memphis; **Dr. Robert McBurney**, Memphis and **Dr. Robert Miles**, Memphis. Other Memphis surgeons attending the sessions of the college included **Dr. Harold B. Boyd**, **Dr. Ralph R. Braund**, **Dr. B. F. Benton**, **Dr. Julian Bramlett**, **Dr. John Tosh**, **Dr. Olin Williams** and **Dr. Sidney Birdsong**.

**Dr. Joseph J. Baker**, Nashville, Commissioner of Tennessee Department of Mental Health, was the guest speaker recently at the annual convention of the Tennessee Association for retarded children.

**Dr. Sam L. Clark**, Nashville, was recently honored by the Northwestern University Medical School.

**Dr. H. W. Whitaker, Jr.**, Savannah, has been inducted as a Fellow of the International College of Surgeons.



**Dr. Wm. J. McGanity**, Nashville, a member of the medical faculty at Vanderbilt University has been named chairman of the department of obstetrics and gynecology at the University of Texas.

**Dr. W. Powell Hutcherson**, Chattanooga, presented a paper before the Sectional meeting of the American College of Obstetrics and Gynecology in St. Louis. His subject was "Cancer of the Cervix."

**Dr. R. H. Webster**, Smithville, has moved to Springfield to be associated with **Dr. Warren G. Hayes** in the practice of medicine and surgery.

**Dr. Eugene B. Linton**, formerly of Winston-Salem, has joined the Acuff Clinic in Knoxville where he will serve as gynecologic surgeon in obstetrics.

**Dr. E. C. Thurmond**, Martin, has been elected president of the medical staff at the Obion County General Hospital.

**Dr. James H. Spaulding, Jr.** has become associated with **Drs. H. D. Long** and **H. D. Venters** in the practice of pediatrics with offices in the Medical Arts Building in Chattanooga.

**Dr. J. H. Farrar**, Manchester, was honored on October 24th for his long service to the public and fifty years in the practice of medicine.

**Dr. Robert Anthony**, Memphis, recently discussed eye problems in the diabetic before the Memphis Lay Diabetic Association.

**Dr. Oliver H. Graves**, Jackson, has been inducted into membership of the American College of Surgeons.

## HISTORICAL NOTES

*Dr. Frank Luton, Nashville, has supplied this interesting historical item describing the founding of the Central State Hospital of Tennessee, from the Nashville Journal of Medicine and Surgery, 1:299, (October), 1851.*

For his own beneficent purposes it has pleased to great Father of man to raise up from time to time, messengers, who from the force of resistless inward impulses, go about continually doing good, and, with healing upon their wings, seek the forlorn and miserable, the lost and degraded, as special objects of their divine ministration. These are strange beings—so strange indeed that mortality of ordinary mould and endowment, while incapable of a just appreciation of their self-sacrificing ministry in its holy purity and beauty, still enjoy a species of delight—it may be per chance, merely a gratification of that innate love of the marvelous which may be traced as an element in moral and intellectual mechanism of all

men—in contemplating these out-of-the-way specimens of their race. High in the list of these lovely messengers from God to the unfortunate, stands the imperishable name of Miss D. L. Dix. This learned, gifted and most remarkable woman, has devoted the energies of her powerful intellect, and almost exhausted her frail body, in going from prison to prison, and from asylum to asylum, and to whatsoever place human misery was to be found, to examine for herself in what way its alleviation could be accomplished. On this self-imposed mission she visited the great state of Tennessee, and along its navigable rivers, its tortuous stage-routes, and by private conveyance across its fertile plains, along its lofty ridges, adown its teeming valleys, and over its snow-capped mountains she wearily threaded her way of mercy in search of human woe. Thus from observation she was enabled to speak. Arriving at the capital in November 1847, she drew up with her own hand a memorial to the representatives of these stricken children of God. "I refer," says this angel of mercy in her memorial, "to the Insane of this state, the various distresses of whose various conditions can be fully appreciated only by those who have witnessed their miseries. Pining in cells and dungeons, pent in log cabins, bound with ropes, restrained by leather thongs, burdened with chains—now wandering at large, alone and neglected, endangering the security of property, often inimical to human life, and now thrust into cells, into pens or wretched cabins, excluded from the fair light of heaven, from social and healing influences—cast out, cast off like the Pariah of the Hindoos, from comfort, hope and happiness; such is the present actual condition of a large number of your fellow citizens. Useless and helpless, life is at once grievous to themselves and a source of immeasurable sorrow to all beside." This picture of truth and horror, enforced by an eloquent appeal "to the Legislature of Tennessee, in which is vested the power by the will of a whole people, to interpose relief, and timely to apply a remedy to heal, or at least to mitigate the ravages of this cruel malady," was not, could not be lost upon the representatives of a great and chivalrous people. The legislature on the 8th of February passed an act to establish

a Hospital for the Insane, and empowering the Governor to appoint commissioners to select and purchase a site, create a Superintendent and Architect, and to do whatever was necessary to promptly carry out the wishes of the Legislature. The Governor seemingly under the holy spirit that guided Miss Dix nominated alone such commissioners as harmonized in benevolence of spirit with the fair memorialist. Alexander Allison, Lucius J. Polk, Andrew Ewing, T. T. Player, Sam'l D. Morgan, J. J. White, H. S. Frazier, D. D. Donaldson and J. J. B. Southall were the commissioners. These gentlemen purchased a beautiful farm in one of the most healthy localities near the capitol, six miles off, immediately upon the Murfreesboro turnpike, and consisting of two hundred and fifty-five acres.

There is no lovelier spot in the state of Tennessee for the object. Beautifully undulating, with a high elevation for the edifice, flanked by a somber old forest, of which each particular tree is a spared monument of mercy from the restless axe of the forest-felling pioneer, while the tender and luxuriant blue grass that carpets the earth rejoices in the protection of a continuous shade. Fountains of living water leap from the green and shaded hillsides, and send their little murmuring currents on their winding way—now struggling with tufts of luxuriant bluegrass, which bending from either side embrace and duck their heads in the refreshing water, as if to sanctify their union by baptism—anon, laughing and dancing in a straggling ray of sun-light, which had found some cranny in the umbrageous canopy to dart down and ravish kisses from the virgin brook—further on and a mimic cascade quivers in the sun-light, and beyond its waters mingle with those of a kindred current, and on they go, dancing and singing together—on, and away. While rambling through these enchanting grounds we could not resist the temptation to invoke the imagination to paint this scene a hundred years ago, ere yet it was profaned by the stealthy foot-print of the land-hunting anglo-saxon—when the red man in the pomp of his power and the pride of his uncivilization was the undisputed and indisputable monarch of the forest. Here at this cool and refreshing fountain, me thought,

after the fierce and exciting ardor of the chase, he bent his manly form, to lave his parched throat and reanimate his exhausted powers from a prolonged expenditure of physical energy. This old oak with its giant arms extending half a hundred feet, was then it its youth, but it interposed its dense luxuriant foliage to shield its fellow denizen from a scorching sun. The cane rustles on the brow of the hill above the fountain, and a female form emerges. Her tresses are black as the raven's wing, long, profuse and glossy—they cover her bust like a mantle. Her jet black eye sparkles with surprised delight, but its flashes are softened and subdued into the mellowness of twilight by the long, black, silken lashes by which it is shaded. She utters no exclamation of surprise, but with averted face, to whose cheek the delicate pencil of native modesty has lent the passion-hue, she quietly seats herself on yonder moss-covered stone. Twigs of evergreen, through whose leaflets peep daisies and violets and kindred flowers, she has ingeniously woven into an intricate wreath which surmounts her high, receding, intellectual forehead and closes behind in a glittering cluster of brilliants. A sacque of pure-white doe-skin, curiously embroidered is confined to her waist by a belt of many-colors, showing her lithe-like, agile form, while the same material of which her upper garment is composed, with a deep and richly died fringe at the only and exterior seam, is laced shapely to her symmetrical extremities, terminating in sandals confined to the foot and ankle by red ribands of delicate fawn skin. They are lovers. Do they rush into each other's arms? Certainly not; for that would be the barbarism of civilization. They do not speak, and if our hero thinks of her at all, it is not betrayed either by the expression of the eye or the movement of a muscle of the face. But there they sit and they are lovers. At length he rises slowly and with dignity. He speaks—"The sun seeks his wigwam in his western home. The head of my shadow reaches far towards sunrise. The wish-ton-wish has commenced his night-song—away!" A single bound,

"And like a passing thought she fled  
In light away!"

Far back of the building site the old forest again asserts its empire, and the scene beau-



tifully diversified and broken into hill and dale, is finally bounded by a blue outline caused by the distant highlands of Mill Creek.

The site being secured, Dr. John S. Young, the former Secretary of State, a gentleman of high and rare qualifications and enlarged philanthropy, was appointed Superintendent, and Maj. A. Heiman, a young man of superior taste and approved skill, was selected as Architect. Dr. Young no sooner received his appointment than with characteristic ardor he visited the northern asylums, that by a personal survey of all the principal Institutions for the insane in the United States, he might put himself in possession of such information as would enable him to give to Tennessee a building worthy of her, and at the same time combining every prerequisite for the best interests of the patients. In the following August, Dr. Young reported two plans to the commissioners, drawn by Maj. Heiman. The first plan was taken from the New Jersey Hospital for the Insane, the second from the Butler Asylum at Providence, Rhode Island. Major Heiman made a slight change in the architectural style of the latter, although its internal arrangements and economy are precisely similar to those of the Butler Asylum. This Institution was erected under the superintendence of Dr. Bell of the Mc-Cean Hospital of Boston, and the plan was copied by Dr. Bell when on a visit to England for information upon this subject, from the Asylum at Maidstone. This plan was adopted by the committee. The Architecture was greatly beautified by the exquisite taste of Major Heiman, and while as we had said, the structure embraces all the conveniences of Maidstone and the Butler Asylum, it infinitely surpasses them in the beauty and imposing grandeur of its architecture. It is just being completed, and was at our last visit a few days ago, receiving the finishing touches of the skilful brush of Capt. Horn. The style of architecture is the Castellated. The length of the pile from east to west is 325 feet. Its greatest breadth across the centre is 98 feet. The centre building as well as the east and west wings are 4 stories high. The wings from north to south are 60 feet deep, and the intervening ranges are 30 feet in depth, forming recesses be-

tween the centre and wings 15 feet deep, and 76 feet in length. The first floor is 4 feet above ground, which descending toward the wings and rear, affords convenient entrances to a basement story 8 feet in height. The first and second stories are 12 feet high; the third 11 feet, and the fourth 10 feet in height in the clear. The structure is embellished with fourteen octagonal towers, 5 feet 3 inches in diameter, which are placed on the corners of the centre building and wings, rising 8 feet above the battlements, which range from tower to tower around the whole building. These towers are used for various purposes, it being a desideratum in architecture to combine the utile with the beautiful. Two are chimnies—several are employed as conductors of the water from the roofs, and serve as ventilating shafts. From the centre of the building rises an octagonal tower 15 feet in diameter, which extends 25 feet above the roof, terminating in battlements, and giving an elevation to the building of 70 feet.

The rooms in the centre building are intended for a public parlor, reception parlor for patients—Physician's rooms, Apothecary, Library, apartments for the Superintendent, a private dining room and store rooms. In addition there is a chastely finished apartment set apart for the use of Miss D. L. Dix, when upon her mission of mercy it shall comport with her convenience to occupy it. There is also a chapel 36 feet by 24 attached to the centre building and entered from the main hall of the second floor. Each floor of the centre building has a hall and a large and convenient stair case. These halls are intercepted on each floor by corridors 92 feet long and 12 feet wide terminating in the corridors in the wards, which are of the same dimensions—so that when the doors are open which divide the centre building from the male and female wards a corridor is presented of 276 feet in length, terminating at each end in a room to be occupied by the attendants.

From the corridor of the wards the single bed rooms for patients are entered, which are 12 feet by 8, and so constructed as to be susceptible of thorough ventilation. There are also in the wings, rooms of larger dimensions, and associated dormitories. Stairways, dining rooms, clothes rooms, and



water closets are in each ward and on each floor. The dining rooms have dum-waiters which come up from the kitchen by simple machinery, and supply the patients of each ward with their meals, with the least possible trouble. The arrangement of the first, second and third stories are preceisely similar, each containing 38 rooms including water-closets. There are 18 rooms in the fourth story, making in all 162 rooms, exclusive of the kitchen, bake-room, servant rooms, ironing rooms, etc., etc., which are in the basement. Here also is the heating furnaces by which the entire building is to be warmed. Each room throughout the entire building has a heating and ventilating flue, the latter terminating in the air-chambers of the attic, from whence the foul air is drawn off by two large ventilating shafts, which rise above the roofs of the wings, representing square towers with battlements.

The building will be supplied with pure and cold spring water, which will be forced up by steam power into three iron tanks, capable of holding four thousand gallons. The largest of these tanks is placed in the great central tower, the others in the attics of the wings. From these tanks water is conducted by wrought iron pipes to the bathing rooms, dining rooms, water closets, kitchen and wherever else it may be needed. The windows in the bedrooms have iron sash, glazed with 5 by 18 inch glass.

The doors of the water closets shut of themselves. By a simple contrivance when they are pushed open water immediately is let into the closet, which flows over the sides of the vessel. Now, when a patient comes in, he has of necessity to open the door. This movement throws water into the vessel, leaving its surface wet and prepared for impurities to slip easily from it. The door closes after the patient and the water is cut off. As he leaves the room, the door is again opened, when a torrent of water is again let into the vessel, which is thus always kept perfectly clean. From each bath room a flue descends into an apartment for dirty linen in the basement. There are also flues which open by means of a little door near

the floor of all the corridors. The sweepings of the rooms of the patients, and the corridors, are swept into these flues, whence they descend to a box in the basement. The dum-waiters employed in carrying the meals of the patients to the dining rooms, are also employed in carrying up to each ward the clothes from the ironing rooms, and upon their return they carry to the wash-house the dirty-linen, etc., from the wards above.

We have been somewhat tedious in the description of this great charity, because as a Tennessean we feel that we have just cause to be proud of it, and we would that all Tennessee could see it that all might feel as we feel. To the Architect it must insure feelings of gratified pride, for it is a magnificent pile, and adds to his reputation for correct, classical and elegant taste, great as it is acknowledged to be. To the Superintendent, Dr. Young, who less than two years ago stood by while a few operatives cleared away the rubbish preparatory to the first stroke of the pick-axe for the foundation, and who has subsequently watched with patient care its progressive development inch by inch, to the very battlements of the central octagon at an elevation of 70 feet above the starting point—who has seen two million five hundred thousand bricks go into its walls, and who has not been absent an entire day from the beginning, the philanthropists of a great state will say with one united voice "well done thou good and faithful servant." To the commissioners whose judgment indicated these faithful functionaries, philanthropy will pay tribute in a grateful and perpetual remembrance, while the Executive that created the commissioners will live in the hearts of the friends of the stricken in mind forever. Let the name of each member of the legislature who responded to the eloquent appeal of the fair and heaven-sent petitioner be engraved upon brass and hung up in the great hall of the building, while for the GREAT SISTER OF THE UNFORTUNATE let the philanthropists of the mountains and the plains, the hills and the valleys of this great Commonwealth diligently search for white marble to build her monument.

## PLACEMENT SERVICE

*The Placement Service of the Tennessee State Medical Association is designed to assist doctors and communities to get together. Further information and contacts on both physicians and communities are available from the Public Service Office, 112 Louise Avenue, Nashville, Tennessee.*

### Locations Wanted

A 32 year old married physician. Methodist. Graduate Duke University. Desires private practice in Ob-Gyn in medium size community in east or middle Tennessee. Available January, 1960. LW-332

A 39 year old married physician. Protestant. Graduate University of Cincinnati. Desires clinical, assistant or associate practice in surgery in Tennessee community of 50,000 or over. Available immediately. LW-337

A 29 year old married physician. Baptist. Graduate Medical College of Georgia. Desires to specialize in Internal Medicine practice in clinic or association with other physician. Available July, 1960. LW-340

A 40 year old married physician. Presbyterian. Graduate University of Vienna. Board Certified in Roentgenology. Desires to service small hospitals. Available in 60 days. LW-341

A 33 year old married physician. Presbyterian. Graduate University of Madrid, Spain. Board eligible in neurosurgery. Desires associate or assistant practice in neurosurgery in Tennessee community of 100,000. Available immediately. LW-342

A 28 year old married physician. Protestant. Graduate Wayne State University, Detroit. Desires location in Tennessee community of 25,000-50,000 in general practice. Prefers clinical work. Available July, 1960. LW-344

A 30 year old married physician. Protestant. Graduate Tulane University. Desires assistant, associate or clinical practice in Ob-Gyn in middle or west Tennessee community of 50,000. Available June, 1960. LW-345

A 38 year old married physician. Methodist. Graduate Vanderbilt University. Desires assistant, associate or clinical practice in Ob-Gyn in east or middle Tennessee community of 30,000-50,000. Available February, 1960. LW-346

A 28 year old married physician. Baptist. Graduate Emory University. Desires assistant, associate or clinical practice in internal medicine in east or middle Tennessee community of 20,000 or more. Available July, 1960. LW-347

A 42 year old married physician. Graduate Syracuse University. Desires private practice or associate practice in Dermatology in Tennessee community of 35,000. Available January, 1960. LW-352

### Physicians Wanted

A middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area 8,000. Located 72 miles from Nashville and about 32 miles from three hospitals. Adjacent to one of state's finest recreational areas. Excellent high school and elementary school. PW-123

Four partner clinic in northwest Tennessee community of 10,000 desires an associate under 35 years of age for general practice. Hospital located in community. PW-124

Middle Tennessee community of 1700 desires general practitioner age 25-40 interested in rural practice. No other physician in community. PW-125

Physician in west Tennessee town of 500,000 desires an associate for internal medicine practice. Office space and some equipment available. PW-126

Physician in east Tennessee community of 30,000 desires an associate general practitioner and surgeon. Office space and some equipment provided. PW-127

Clinic in east Tennessee community of 4,000 has opening for general practitioner interested in obstetrics. Hospital located in community. PW-128

Northwest Tennessee community of 1200, trade area of 3,000. Desires general practitioner. Nearest hospital 16 miles. Office space available. Near large recreational area. PW-129

Physician in middle Tennessee town of 200,000 desires an associate general practitioner. Office space and some equipment available. PW-130

Southern Tennessee Community of 1,000 desires general practitioner to replace physician who has left community to join hospital group in another community. Nearest hospital 15 miles. Office space available. Good location. PW-131

Physician in northwest Tennessee community of 5,000 desires general practitioner to associate with him in his practice in east Tennessee and southern Kentucky. Hospital located in community. Office space and some equipment available. Excellent location. PW-132



# Journal of the Tennessee State Medical Association

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One form of sterility which offers hope of correction is polycystic ovary disease. The authors consider its diagnosis and management.

## POLYCYSTIC OVARY DISEASE\*

SAMUEL S. LAMBETH, M.D. and ELGIN P. KINTNER, M.D.,†  
Maryville, Tenn.

Several items are of interest in the condition which shall be referred to as *polycystic ovary disease*. There is considerable controversy in the literature in regard to its etiology, incidence, diagnosis and treatment. It is a disease of gradations. Although in its classical form it appears rarely, there are many other patients whose symptoms are quite similar. Its real significance lies in a close relationship to the large group of women with ovulatory defect problems. This disease has been referred to as the Stein-Leventhal Syndrome. For the sake of clarity of description, polycystic ovary disease is the term which shall be employed in this report. Several patients with this condition have been operated upon in the Blount Memorial Hospital. From a practical point of view, this study was undertaken to see why some of the operative results were good and others were bad.

### Clinical and Pathologic Description

Clinically, the condition is characterized by menstrual irregularities and infertility associated with failure of ovulation. Hirsutism has been frequently observed. Anovulation is a constant finding. Infertility may not be a complaint if contraception is practiced. Symptoms usually appear a few years after the menarche; occasionally they may develop after a period of relative fer-

tility or may rarely occur in the premenopausal age group.

The gross appearance of the ovaries is almost diagnostic when coupled with the typical clinical picture. In true polycystic ovary disease, the ovaries are usually symmetrical and have remarkably smooth white capsules with uniform water filled cysts averaging 0.5 cm. in diameter beneath them. The cysts are evenly spaced with relatively wide bands of ovarian stroma between them. (Fig. 1.) There is a lack of evidence

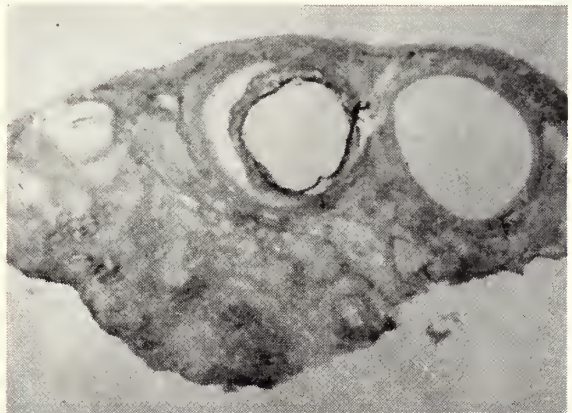


FIG. 1. True polycystic ovary disease. Note that the cysts are of uniform size and are spaced with wide bands of stroma separating them. No corpora albicantia are present.

of recent ovulation. As a rule there are no involuting corpora lutea, no or only poorly defined corpora albicantia, and usually no hemorrhagic cysts. Ovaries of ovulating women may show multiple cysts; but these cysts tend to bulge slightly on the surface, vary in size when the cut surface is viewed, and are crowded together with narrow walls between them. (Fig. 2.) Involuting corpora lutea, numerous corpora albicantia

\*Read at the meeting of the Tennessee State Obstetrical and Gynecological Society, April 14, 1959, Memphis, Tenn.

†From the Blount Memorial Hospital, Maryville, Tenn.



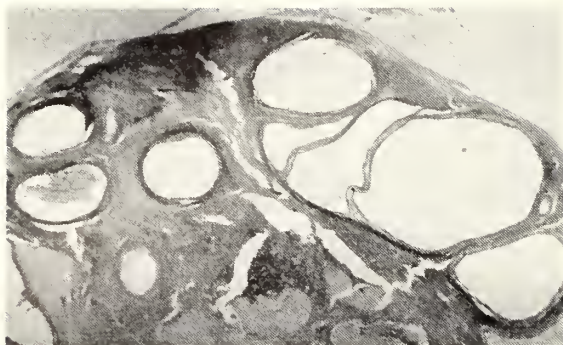


FIG. 2. False polycystic ovary disease. The cysts vary in size and distribution, the walls between adjacent cysts are thin, and corpora albicantia are prominent.

and hemorrhagic cysts are demonstrable under normal circumstances.

Microscopically, in polycystic ovary disease large sections of ovaries present the same morphologic findings that can be seen grossly. The white capsule appears as a thickened zone of condensed, hyalinized, ovarian stroma. The spacing and configuration of the cysts can be seen. There may be proliferation and hypertrophy of the theca, but this is not a constant finding and is seen in other conditions. Primordial germ follicles are seen in proportion to the patient's age. Ovarian stroma has a loose cellular arrangement in contrast to the tendency to nodular condensations in other types of cystic changes. Atretic follicles are increased in number and sometimes resemble poorly defined corpora albicantia.

The above pathologic description is based on an analysis of 41 patients with polycystic changes in the ovaries removed by operation in this hospital. Of this group, approximately one-third revealed changes which, together with the clinical information, established a diagnosis of polycystic ovary disease. The remaining cases were examples of degenerative disease in the ovaries associated with other conditions or instances in which a definitive diagnosis could not be made. No pathognomonic changes could be demonstrated. Summers and Wadman,<sup>1</sup> making a similar study with autopsy material, reached the same conclusion. Shippel<sup>2</sup> could not find a correlation of his cases of hyperthecosis with polycystic ovary disease. These observations support the fact that neither the symptoms nor the pathologic changes are always typical. The diagnosis can be made only by

a careful evaluation of both these factors. A summary of the major diagnostic criteria are listed in table 1.

Table 1

#### CHARACTERISTICS OF THE DISEASE

1. Abnormal menstruation.
2. Failure of ovulation.
3. Bilaterally smooth, cystic ovaries.
4. Hirsutism (estimated to be present in 50%).

#### Case Summaries

Below are presented 5 brief clinical summaries of patients who are considered examples of polycystic ovary disease. Some represent a milder degree of ovarian dysfunction than others. All underwent an ovarian wedge resection operation. An evaluation of the patient's tubal patency, thyroid function, in some cases adrenal function, and determination of the presence of bilateral ovarian cysts were carried out before operation. The husband's fertility was known in each case. It is noted in case summaries Nos. 3 and 4 that two of the patients had had previous pregnancies. However, each had the criteria of irregular menstruation, failure of ovulation, and bilateral polycystic ovaries. Only one patient (case 2) had any appreciable hirsutism.

Two of these individuals (cases 1 and 5) are of particular interest because corticosteroid therapy has been tried after operation. The menstrual periods of one became regular for about a year after operation, then resumed irregularity, and again became regular after institution of steroid therapy. The type of menstruation, the appearance of the temperature curve, and the endometrial biopsy findings indicate that this patient's ovarian problem has been corrected. However, she has not become pregnant.

#### CASE SUMMARY No. 1

N. S. (57767):	Age 20, white, married, para 0.
<i>Before Operation:</i>	Infrequent menses for 3 or 4 yrs. No contraceptives for 3 yrs. Previous treatment was progesterone. BBT* was monophasic.
<i>Pelvic Examination:</i>	Bilaterally enlarged ovaries.
<i>Operation:</i>	Bilateral wedge resection of ovaries, Sept. 10, 1958.
<i>Pathology Report:</i>	Multiple small follicular cysts; thickened capsule.
<i>After Operation:</i>	Menses have been regular. BBT has been biphasic.

No pregnancy has occurred.  
*Corticosteroid Therapy:* Hydrocortisone 5 mg. every 8 hrs. started March 3, 1959.  
 (\*B B T = basal body temperature.)

## CASE SUMMARY No. 2

P. L. (45648): Age 23, white, married, Para 0.  
*Before Operation:* Menses delayed for past 5 yrs., usually every 2 or 3 mos.  
 No contraceptives for 5 yrs.  
 Previous treatment included thyroid and progesterone.  
*Pelvic Examination:* Mild facial hirsutism. Bilateral enlargement of ovaries, demonstrable only under anesthesia.  
*Operation:* Bilateral wedge resection of ovaries, May 28, 1957.  
*Pathology Report:* Multiple small follicular cysts; thickened capsule.  
*After Operation:* Menses regular.  
 No other treatment.  
 B B T biphasic.  
 Less hirsutism.  
 Delivery of normal female (9 lb.) infant on Sept. 26, 1958.  
 Menses have been regular since this delivery.

## CASE SUMMARY No. 3

M. McC. (47157): Age 26, white, married, para 3, ab. 2.  
*Before Operation:* Menses early or delayed for 2 yrs.  
 No contraceptives for 3 yrs.  
*Pelvic Examination:* No previous treatment. Bilaterally enlarged ovaries.  
*Operation:* Bilateral wedge resection of ovaries, May 7, 1957.  
*Pathology Report:* Multiple small follicular cysts; sclerosis of capsule.  
*After Operation:* Menses regular.  
 No other treatment.  
 Delivery of normal female (5 lb. 11 oz.) infant on Sept. 25, 1958.  
 Menses have been regular since this delivery.

## CASE SUMMARY No. 4

G. L. (54702): Age 27, white, married, para 2.  
*Before Operation:* Menses totally irregular, with bleeding episodes between periods for at least 1 yr.  
 No contraceptives for 18 mos.  
*Pelvic Examination:* No previous treatment. Bilateral cystic enlargement of ovaries.  
*Operation:* Bilateral wedge resection of ovaries.  
*Pathology Report:* Multiple small follicular cysts; cortex thickened; sclerotic capsule.  
*After Operation:* Menses very regular.  
 No other treatment.  
 B B T biphasic.  
 Normal delivery male infant (7 lb. 6 oz.) on Aug. 20, 1959.

## CASE SUMMARY No. 5

M. A. K. (41641): Age 27, white, married, para 0.  
*Before Operation:* Menses delayed; every 2 or 3 mos., for last 6 yrs.  
 B B T monophasic.  
 No contraceptives for 4 yrs.  
 Previous treatment thyroid and progesterone.  
*Pelvic Examination:* Bilaterally enlarged ovaries.  
*Operation:* Bilateral wedge resection of ovaries, Dec. 4, 1956.  
*Pathology Report:* Multiple small follicular cysts; thickened ovarian capsule.  
*After Operation:* Menses regular.  
 B B T biphasic for 1 year.  
 Menses became infrequent and B B T monophasic thereafter.  
*Corticosteroid Therapy:* Prednisone 15 mg. started Oct. 18, 1958, reduced to 10 mg. on Nov. 3, 1958, and to 5 mg. on Feb. 14, 1959.  
 Menses are now more regular.  
 B B T now biphasic.  
 Endometrial biopsy Feb. 15, 1959, showed secretory endometrium.  
 No pregnancy has occurred.

## The Literature on Incidence, Etiology and Treatment

The true incidence is not well known. It is certain that the condition does not occur very frequently in its typical form. However, there must be closely related conditions which are diagnosed as polycystic ovary disease by some authors and which do not quite qualify for this diagnosis by others. Leventhal<sup>3</sup> stated that he had found only 6 cases in 9000 gynecologic laparotomies. Garry and Fienberg,<sup>4</sup> in a recent report, discussed 10 cases which were found in a single year in a small general hospital. Davis, Ashe, and Austin<sup>5</sup> stated that they think the condition is more common than is generally realized and that it will be found only by careful observation and proper study of individuals with menstrual disturbances and sterility.

Several theories on etiology have been presented. It is historically significant that the first reference to polycystic ovary disease as an entity was by Stein and Leventhal,<sup>6</sup> in 1935. These investigators were obtaining ovarian biopsies from patients with sterility, amenorrhea, and hirsutism, to see if they could determine the cause of the menstrual irregularity. Observation of



their patients after operation revealed that the periods became regular in many instances and that some of them became pregnant. When these results were published, the condition became known as the Stein-Leventhal Syndrome.

One of the first theories was that the thickened capsule of these ovaries prevented ovulation. Although this idea has been abandoned by most, it is still held by a few. The theories of several authors<sup>1,3,7,8</sup> are noted in table 2. It is generally thought

Table 2

## CONCEPTS OF ETIOLOGY

STEIN: <sup>6</sup>	Primary ovarian changes.
LEVENTHAL: <sup>3</sup>	"Likely that original stimulus comes from outside the ovary." May be pituitary; may be adrenal cortex.
PERLOFF: <sup>8</sup>	"Adrenal disorder is primary. Ovarian changes follow or develop concurrently."
SHIPPEL: <sup>7</sup>	Primary ovarian disease—basis is hyperthecosis in various degrees. Theca cells produce the androgen which prevents follicle maturation.

that the disease is either a primary ovarian derangement, or a primary adrenal cortical abnormality with secondary changes in the ovaries. The correct theory of etiology must await further laboratory study.

The opinions expressed in the literature on treatment are quite varied. Some of these<sup>7-10</sup> are shown in table 3. The method

Table 3

## CURRENT OPINIONS ON THERAPY

JEFFERIES: <sup>9</sup>	Small doses of corticosteroids; usually 5 mg. cortisone every 8 hours.
PERLOFF: <sup>8</sup>	Corticosteroids; usually 10 mg. prednisone daily.
STEIN: <sup>7</sup>	Treatment is surgical. Endocrine therapy first may contribute to poor results.
PALMER: <sup>10</sup>	Anovulatory women will begin to ovulate and become pregnant after ovarian wedge resection; this happens to individuals who have not developed any of the stigmas of Stein-Leventhal Syndrome.

of Jefferies<sup>9</sup> is most interesting. He believes that small doses of corticosteroids at definite intervals give the best results. Buxton<sup>11</sup> has suggested that all patients with this diagnosis receive corticosteroid therapy for several months and then be subjected to operation if medical treatment has not been successful.

## Diagnostic Survey Before Medical or Surgical Treatment

After reviewing the experience with this disease at Blount Memorial Hospital and studying the literature on the subject, it appears that the most important part of the care of these individuals is the proper diagnostic study before operative or medical treatment. Only in this way will a good percentage of satisfactory post-treatment results be obtained. Table 4 presents a list

Table 4

## PRETREATMENT WORKUP

1. Husband's Semen Analysis
2. Tubal Patency Test
3. Basal Body Temperature Chart
4. Endometrial Biopsy
5. Thyroid Function Studies
6. Urinary F S H Level
7. Demonstration of Bilaterally Cystic Ovaries
  - (1) Pneumoroentgenograms
  - (2) Culdoscopy
  - (3) Examination under anesthesia
8. Rule out Adreno-genital Syndrome
  - (1) 17-ketosteroid determination
  - (2) Fractionation of keto-steroids

of pretreatment studies which is considered ideal but which may not be necessary or practical in its entirety for every patient.

Some of these studies need special comment. Obtaining an endometrial biopsy at the right time in the cycle to be of any value is sometimes difficult in private practice. The biopsy must be obtained within a few days before the expected date of menstruation or during the first few hours after bleeding has started. The follicular stimulating hormone assay is most important in patients who have a history of long standing amenorrhea, because some of these individuals may represent cases of premature menopause which will not respond to either surgical or medical therapy. The demonstration of bilateral polycystic ovaries prior to operation or medical treatment is necessary if one is to effectively evaluate the results of therapy. Repeated pelvic examinations during the course of the pre-operative survey, and then an examination of the pelvis under anesthesia are sufficient in most cases to determine the presence or absence of enlarged ovaries. Stein has stressed the value of gynecography. Others refer to culdoscopy and posterior colpotomy.

The most difficult differential diagnosis is a mild Adrenogenital Syndrome. The urinary 17-keto-steroid determination should



be obtained on all of these patients prior to starting treatment and is considered the most important single laboratory test. Perloff<sup>8</sup> and Jefferies<sup>9</sup> state that there are changes in the adrenal cortical function in polycystic ovary disease which can be diagnosed by fractionation of the 17-keto-steroids. This is a tedious procedure which is not available in most clinical laboratories. The finding of abnormalities in any fraction of the 17-keto-steroid determination would make more logical the assumption that polycystic ovary disease is primarily adrenal in origin and would provide rationale for the treatment of these patients with corticosteroids.

Kupperman<sup>12</sup> has emphasized that it is difficult to differentiate the patient with polycystic ovary disease from the individual with a mild adrenogenital syndrome. He says, "that clinical similarity between the patient with the Stein-Leventhal Syndrome and the A.G.S. may make differentiation difficult." He further states that in the Stein-Leventhal Syndrome the urinary 17-keto-steroids are usually not significantly elevated and will not be depressed on the recommended doses of corticoids (2-5 mg. Meticortin q.i.d.), and there will be no clinical remission on the trial of corticosteroid therapy in the Stein-Leventhal patients.

#### Summary and Conclusions

1. Polycystic ovary disease is an example of an ovulatory defect which may be the result of an ovarian or an adrenal disorder.
2. The diagnosis must be made only when

the clinical and pathologic criteria agree.

3. Bilateral wedge resection of the ovaries is a satisfactory treatment for some of these patients.
4. There is great need for a better method of determining which patients will respond to operation.
5. More study will be required to decide whether corticosteroid therapy will be effective in correcting this ovulatory defect.

#### References

1. Sommers, S. C. and Wadman, P. J.: Pathogenesis of Polycystic Ovaries, *Am. J. Obst. & Gynec.* 72:160, 1956.
2. Shippel, S.: Ovarian Theca Cell; Hyperthecosis Syndrome, *J. Obst. & Gynaec. Brit. Emp.* 62:321, 1955.
3. Leventhal, M. L.: The Stein-Leventhal Syndrome, *Am. J. Obst. & Gynec.* 76:825, 1958.
4. Garry, J. and Fienberg, R.: Polycystic Ovaries, *Obst. & Gynec.* 12:480, 1958.
5. Davis, C. and others: Sclerotic Polycystic Ovary Syndrome, *South. M. J.* 49:856, 1956.
6. Stein, I. F. and Leventhal, M. L.: Amenorrhea Associated with Bilateral Polycystic Ovaries, *Am. J. Obst. & Gynec.* 29:181, 1935.
7. Stein, I. F., Sr.: The Stein-Leventhal Syndrome, *New England J. Med.* 259:420, 1958.
8. Perloff, W. H. and others: Clinical Management of Idiopathic Hirsutism (Adrenal Virilism), *J.A.M.A.* 167:2041, 1958.
9. Jefferies, W. M. and others: The Use of Cortisone and Related Steroids in Infertility, *Fertil. & Steril.* 9:145, 1958.
10. Palmer, Allan: *Medical Forum, Mod. Med.* p. 32, (Oct. 15) 1958.
11. Buxton, C. L. and Vande Wiele, R.: Wedge Resection for Polycystic Ovaries, *New England J. Med.* 251:293, 1954.
12. Kupperman, Herbert S.: Corticoids Therapy in Gynecology, Abstracts of 9th Meeting, *Am. Acad. Gen. Pract.* p. 111, 1957.

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The artificial kidney moved from the experimental stage to one of practical usefulness several years ago. Its uses are clearly outlined in this paper.

## THE ARTIFICIAL KIDNEY

FRED GOLDNER, JR., M.D., and LAURENCE A. GROSSMAN, M.D., Nashville, Tenn.

A practical hemodialyzer was first successfully devised in 1944.<sup>1</sup> Since that time repeated improvements have been made in artificial kidneys and, as a consequence, these machines have been used more frequently and for a wider variety of conditions and are now practical tools in experienced hands. It is the purpose of this brief note to review the principles of dialysis and to indicate its usefulness in certain therapeutic situations.\*

The basic principle of all currently employed artificial kidneys is the semi-permeable membrane. This may be compared to the capillary wall of the glomerular tuft of the mammalian kidney. The membrane used consists of sheets or tubes of cellulose which separate the blood from the dialyzing fluid, or dialysate.

In preparing a patient for the use of the artificial kidney, a small to medium-sized artery and vein, or two medium-sized veins are cannulated. Blood is then conducted into the cellophane membrane, by gravity in the rotating type of machine or by a pump in the stationary type of machine. While the blood is within the cellophane loops or sheets, it is bathed by the meticulously prepared 100 liter bath, the constituents of which are carefully individualized for the particular patient. Thus blood, with its crystalloids, which are capable of diffusion or passage through the membrane, as well as its colloids and cells, which are too large for the migration through the membrane, is separated from the bath which contains only diffusible crystalloids. In the artificial kidney the abnormal constituents in the blood which are diffusible can be

"dialyzed out" and be diluted a great number of times in the large dialysate. Concurrently abnormally low concentration of diffusible substances in the blood may be increased by dialysis in the reverse direction. Thus, if the blood nonprotein nitrogen concentration is 150 mg. per 100 ml. and its concentration in the bath is zero, nonprotein nitrogen passes from the blood to the bath. Similarly, if the blood uric acid level is 15 mg. per 100 ml. and that of the bath is zero, uric acid passes from the blood to the bath. At the same time, if the blood bicarbonate is 10 mEq/L (22 vol. per 100 L.) and the bath contains bicarbonate at 25 mEq/L (55 vol. per 100 L.), the net bicarbonate migration will be from the bath to blood. (Fig. 1.)

When the hydrostatic pressure of the blood is increased or that of the dialysate decreased, water tends to pass from the blood into the dialysate by the process of ultrafiltration. Although many factors such as molecular weight and temperature modify the rates and directions of flow of the participating molecules, the chief factors are the differences in concentrations of the substances on the two sides of the membrane and, in the case of water, the hydrostatic pressures.

The process of dialysis is a surface phenomenon which depends upon the contact of the blood with the surface, or semipermeable membrane. Consequently, the artificial kidney is designed to expose as much blood as is feasible to the surface of the membrane. For the concentration gradient between diffusible substances on one side of the membrane and those on the other to remain maximal, a large quantity of bath is employed. This at least insures dilution of the factors that go in the direction from blood to bath. To further maintain this

\*The artificial kidney has had its use in the management of 4 seriously ill patients during the past 12 months on the Medical Service of St. Thomas Hospital, Nashville.

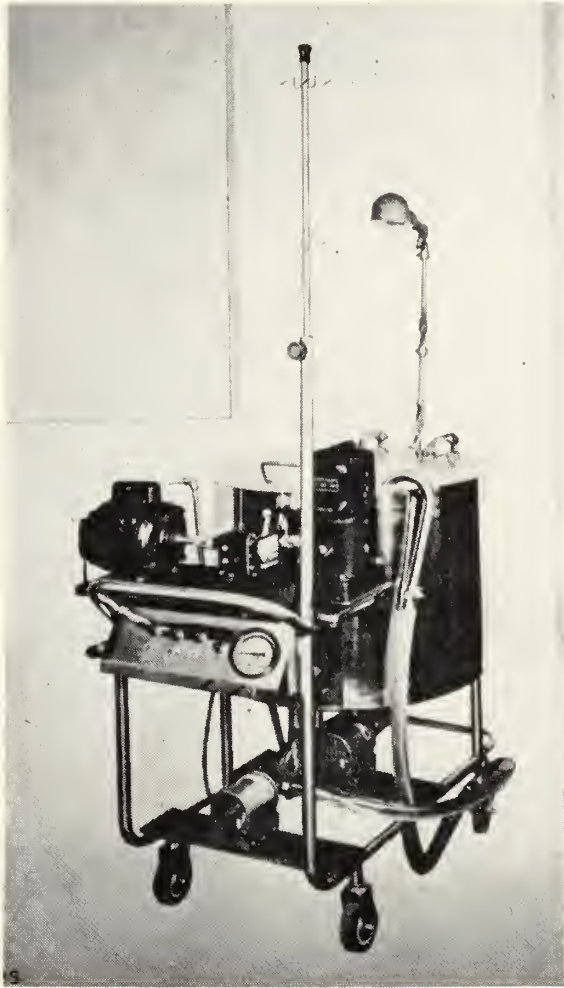


FIG. 1

gradient, new baths, with changes again individualized for the specific needs of the patient at that particular time are installed at specified intervals.

After passage through this membrane with a vast surface area, the blood is conducted back into a cannulated vein. The entire time of dialysis lasts 4 to 8 hours. The cellophane is sterile; the bath is not sterile, but there is no risk of infection for the pore-size of the cellophane is too small to permit the ingress of viruses and bacteria.

#### Uses of Artificial Kidney

*Acute Renal Failure.* Excellent results have been achieved with the use of the artificial kidney in acute tubular necrosis or "lower nephron nephrosis."<sup>2, 3</sup> It is not necessary at this time to discuss the therapeutic mechanisms utilized in maintaining physiologic homeostasis when this condition exists. However, it should be stressed that

this is usually a reversible disease and autopsy specimens reveal tubular repair. Death occurs in these situations because of the primary or concomitant illness or because of a complication of anuria. The artificial kidney, then, is used in these situations to give the human kidney time for repair. Meanwhile, the death dealing influences of potassium intoxication, can be effectively treated. Thus, with the artificial kidney, the classical electrocardiographic changes due to high serum potassium are seen to revert to normal. In a similar manner, the symptoms of uremia which force the patient to remain in bed or keep him in stupor, setting the stage for the complications of bedrest can be obviated.

The list of causes of acute potentially reversible renal insufficiency is now long and it seems to increase in length each year. The artificial kidney has been successfully used at strategic times in many of them. This list ranges from transfusion reactions, and postpartal complications, to drug reactions and postsurgical and other forms of shock. When anuria is persistent, acute tubular necrosis must be the diagnosis in these conditions. The physician must be aware of this situation early and aim his treatment immediately at physiologic homeostasis. Unfortunately, the artificial kidney is often remembered only after patients are moribund.

It should be emphasized that the decision of the proper time to use the artificial kidney depends upon careful clinical judgment which is gained not only as a consequence of previous experience with use of the apparatus, but also as a consequence of a close familiarity with the disease process.

Some of the common examples of clinical conditions characterized by acute renal failure which may be treated with the artificial kidney are:

1. Postpartal renal insufficiency.
2. Transfusion reactions.
3. Crush syndrome.
4. Postsurgical anuria.
5. Severe acute glomeronephritis.
6. Hepatorenal syndrome.
7. Severe lopus nephritis, and perhaps renal exacerbations of other collagen vascular diseases.



*Chronic Renal Failure.* Selected patients who have chronic renal disease may obtain remissions in symptoms and chemical abnormalities for several weeks or months after a dialysis with the artificial kidney.<sup>2,4,5</sup> At present there seems to be no substitute for clinical judgment based on experience with the artificial kidney itself in predicting the likely candidates for these remissions. In addition, some patients who have chronic uremia have acute exacerbations due to infection or an intercurrent clinical incident either of which may be reversible.

*Removal of Toxins.* The artificial kidney has been employed successfully to remove specific diffusible toxins from patients.<sup>6,7</sup> These toxins must still be present in the blood stream, not very tenaciously bound to serum proteins, and of small enough molecular size to pass through the semi-permeable membrane. Good examples of this are barbiturates, thiocyanates, salicylates, bromides, and glutethimide.

*Other Uses.* On occasion, severe electrolyte imbalances may be treated with the artificial kidney.<sup>8</sup> Another rarely indicated use is intractable edema, in which the machine is used to remove water, especially in the presence of uremia.

#### General Comment

The artificial kidney has "grown up" concurrently with the realization that fluid and electrolyte imbalance or the kidney itself are participants of an enormous number of disease situations.<sup>9,10</sup> One need only consider the range of fluid problems which extends from congestive heart failure and hypertension on the one hand to premenstrual edema on the other. Medical renal disease as well as abnormalities in fluid, electrolyte and acid-base present challeng-

ing therapeutic problems. The artificial kidney is an instrument of ever-increasing importance with therapy of these conditions. Consequently, medical renal disease itself, when treated with proper respect for basic physiologic and pathologic abnormalities should no longer be surrounded by a cloud of gloom.

#### Summary

The artificial kidney is a means of producing extracorporeal hemodialysis. The physiochemical principles it employs and some of its clinical uses have been briefly outlined.

#### References

1. Kolff, W. J., and Berk, H. T. J.: The Artificial Kidney: A Dialyser with a Great Area, *Acta med. scandinav.* 117:121, 1944.
2. Merrill, J. P.: The Artificial Kidney, *New England J. Med.* 246:17, 1952.
3. Kolff, W. J.: The Artificial Kidney—Past, Present, and Future, *Circulation* 15:285, 1957.
4. Goldner, F., Gordon, G. L., and Danzig, L. E.: Use of Artificial Kidney in Chronic Renal Disease, *A.M.A. Arch. Int. Med.* 93:61, 1954.
5. Goldner, F.: The Artificial Kidney South, *M. J.* 50:1301, 1957.
6. Berman, L. B., Jeghers, H. J., Schreiner, G. E., and Pallotta, A. J.: Hemodialysis, an Effective Therapy for Acute Barbiturate Poisoning, *J.A.M.A.* 161:820, 1956.
7. Schreiner, G. E., Berman, L. B., Kovach, R., and Bloomer, H. A.: Acute Glutethimide (Doriden) Poisoning—The Use of Bemegride (Megimide) and Hemodialysis, *A.M.A. Arch. Int. Med.* 101:899, 1958.
8. Gordon, G. L. and Goldner, F.: Hypernatremia, Azotemia and Acidosis after Cerebral Injury, *Am. J. Med.* 23:543, 1957.
9. Atlas, D. H., Jr., and Gaberman, P.: Reversible Renal Insufficiency Diagnosis and Treatment, Baltimore, Williams & Wilkins, 1958.
10. Strauss, M. B., and Raisz, L. G.: Clinical Management of Renal Failure. Springfield, Ill., Charles C. Thomas, 1956.

## CASE REPORT

### BONE PAIN IN ESSENTIAL HYPERLIPEMIA,

Marvin L. Wolff, M.D.,\* Memphis, Tenn.

The subject of essential hyperlipemia has been thoroughly reviewed.<sup>1,2</sup> My purpose here is to point out, what insofar as I know, is an undescribed symptom in this condition, namely, bone pain. The following case report presents this finding.

#### Case Report

On June 15, 1957, a 36 year old white man, referred by a dermatologist, came to my office for medical evaluation concerning xanthomatous skin lesions. About 2 months previously he had noticed yellowish papular eruptions on both knees. Soon there had appeared similar lesions on his elbows and on the nape of his neck. They were about 0.5 to 1 cm. in diameter, and became increasingly numerous. He had first noticed them at about the time his home had been destroyed by fire; whether or not his emotional upset at this event precipitated the eruption is not known. During the past 2 to 3 years he had had a great deal of tenderness and pain in various bony structures. His right index finger had become extremely sensitive to touch. A slight blow to any bone would produce excruciating pain. Even removing his glasses would frequently produce cranial pain. Stretching the tendons of his wrists and ankles caused much discomfort. He had had several episodes of sharp pain shooting up his spine to his head. However, at no time had he noticed any swollen, red, or tender joints.

In the past, he had had the usual childhood illnesses without consequence. During World War II he had served on active duty in the United States Army in China, India, and Burma, and had had malaria, amebic colitis, and amebic hepatitis. There had been recurrent attacks of malaria, but none in the past 10 years.

His family history revealed that his parents are living and well; he was one of 7 siblings and, except for one sister who died of "uremic poisoning" during the terminal stages of a pregnancy, all his brothers and sisters are well. All are heavy. There is no knowledge of a hyperlipemic condition in any relative.

The system review was unremarkable except for occasional intolerance to fatty and greasy foods. The patient had never experienced any episodes of abdominal pain.

Physical examination showed a moderately obese man. He was 180.3 cm. tall (5' 11") and weighed 112.5 kg. (248 lbs.). Small, papular, yellowish, xanthomatous lesions were present on the neck, knees, thighs, and elbows. The blood

pressure was 130/96; the pulse was normal. The eyegrounds appeared normal. There was tenderness to slight pressure and tapping of all bones of the extremities and the skull. The right index finger was particularly sensitive to touch. On extension of the left thumb a nodular mass was felt upon its dorsal surface overlying the metacarpal bone; this was probably a xanthoma of the extensor pollicis longus tendon. The remainder of the examination was unremarkable.

The following laboratory data were obtained in the Baptist Memorial Hospital, Memphis. The VDRL study, the peripheral blood, and urinalysis were normal. The serum cholesterol was 730 mg. per 100 ml. (normal 160-270 mg. per 100 ml.) and the total lipids were 4,415 mg. per 100 ml. (normal 450-850 mg. per 100 ml.). A glucose tolerance test was slightly elevated. An electrocardiogram was normal. X-ray studies of the chest, skull, long bones, and pelvis were negative.

The patient's serum appeared milky. When informed of this, he remembered being told the same thing 12 years previously when blood was drawn for a routine premarital serologic examination.

On the basis of the skin lesions, the milky serum, the elevated serum lipids, and the absence of any other abnormal condition, a diagnosis of *essential hyperlipemia* was made. The abnormal glucose tolerance curve was thought to be an associated finding rather than a cause of the hyperlipemia.

The patient was placed on a low fat diet. Within one month he lost 11.3 kg. (25 lbs.) in weight, the skin lesions regressed remarkably, the nodular mass on the thumb was no longer present, and the bone pain disappeared completely. Three months later he had lost 11.3 more kg. (25 lbs.) in weight, the skin lesions were no longer discernible, and it was impossible to elicit any bone tenderness. The total serum lipids had fallen to 2,210 mg. per 100 ml. Daily Clinitests of the urine were negative. Generally, he felt very well.

In October, 1958, the patient was treated in the Baptist Memorial Hospital, Memphis, for an acute pleuritis, which responded promptly to conservative measures. At this time, further laboratory studies were made, with the following results. The serum again appeared milky. The total serum lipids were 1700 mg. per 100 ml., and the serum cholesterol was 207 mg. per 100 ml., with 95% esters. This persistence of the milky serum and elevated total lipids while the serum cholesterol returned to normal is characteristic of essential hyperlipemia. Various liver function tests were normal, although the liver at this time was palpable about 2 fingerbreadths below the right costal margin. This liver enlargement had not been detectable prior to the patient's weight loss of some 22.7 kg. (50 lbs.). A fasting blood sugar was 95 mg. per 100 ml., and the serum amylase was 81 mg. per 100 ml. X-ray studies of the

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chest, gallbladder, and entire intestinal tract were negative. An electrocardiogram was normal. Stool examinations and proctosigmoidoscopy were normal.

At present (May 15, 1959) the patient continues well and free of any symptoms of essential hyperlipemia.

#### Comment

Recently, some writers<sup>3,4</sup> have suggested the use of heparin in cases of essential hyperlipemia, but this patient responded promptly to diet alone.

The unusual symptom of bone pain in association with essential hyperlipemia is noteworthy. There must be a direct connection between the patient's metabolic disorder and his bone pain, because both the bone pain and the skin lesions disappeared dramatically with diet and weight loss. No

explanation is offered, but speculation is invited.

*Note:* I am indebted to Dr. Siegfried J. Thannhauser for his review of this case.

#### References

1. Thannhauser, S. J.: Lipidoses: Diseases of the Cellular Lipid Metabolism. *In* The Oxford Medicine, ed. H. A. Christian, vol. IV, Chap. VII-A, pp. 214(3)-214(595), New York, Oxford University Press, 1949.
2. Thannhauser, S. J.: Lipidoses. New York, Grune and Stratton, 1958.
3. Lever, W. F., Herbst, F. S. M., and Hurley, N. A.: Idiopathic Hyperlipemia and Primary Hypercholesteremic Xanthomatosis. IV., A.M.A. Arch. Dermat. 71:150, 1955.
4. Lever, W. F., Herbst, F. S. M., and Lyons, M. E.: Idiopathic Hyperlipemia and Primary Hypercholesteremic Xanthomatosis. V., A.M.A. Arch. Dermat. 71:158, 1955.

**CORONARY AND AORTIC ATHEROSCLEROSIS IN THE NEGROES OF HAITI AND THE UNITED STATES.** By Dale Groom, M.D., F.A.C.P., Edward E. McKee, M.D., Charles Webb, M.D., Faye W. Grant, Ph.D., Charleston, South Carolina, Vergnand Pean, M.D., Edith Hudicourt, M.D., Port-au-Prince, Haiti, and James Dallemard, M.S., Detroit, Michigan. *Ann. Int. Med.* 51:270, 1959.

The degree of coronary and aortic atherosclerosis in 267 autopsies of Haitian and American negroes was graded on a scale of 0 to 4 by the same pathologist, their individual age, sex and country of origin unknown to him. Routine autopsies covering all types of mortality over age 20 were utilized as representative samples of the two population groups. Although the number of subjects was limited, it was considered to be representative of the two population groups.

It was demonstrated that the Negro in Haiti has about half the degree of coronary sclerosis that the American Negro has. This proportion held for both males and females and roughly for all age decades over 20. However, there was no such disparity between the two populations as to the amount of aortic atherosclerosis. Certain differences in the environment of these peoples of the same race were of interest in this regard. Diet was one of those and not necessarily the most significant one. Relative to dietary findings, the average Haitian eats a fare markedly different from that of his race in the Southern United States. The Haitian consumes less of all foods of animal origin, considerably less protein and fat with about three times as much of his total

fat intake being in the form of linoleic acid. His daily caloric intake was less, average body weight was also less which is perhaps significant.

The comparative predisposition of the American Negroes to coronary and not to aortic atherosclerosis is difficult to explain on the basis of diet alone, unless diet is demonstrated to affect selectively in some ways the arteries of the coronary circulation. In conjunction with this study questionnaires were filled out by seven American residents of Haiti. There was almost complete agreement among them that the Haitian worried less, slept more, that his tempo of living was slower and less stressful than that of the Negro in the United States. It was also demonstrated that the Haitian habitually exercised more, principally in hard physical labor and in his chief mode of transportation—that of walking.

Contrasted with this existence is the more complex civilization of the Negro in the United States with its mechanization, social tension, and social competition in which he usually finds himself coming out second best. His reaction to adversity is perhaps a more significant measure of stress than the situation itself.

The apparent predisposition of the American group to coronary, but not to aortic atherosclerosis, suggests the importance of factors other than diet in the etiology of coronary disease. Conceivably these factors may include the more stressful environment and the greater complexity, mechanization, agitation, education and competitiveness of the Negro's life in the United States. (Abstracted for the Middle Tennessee Heart Association by Peirce M. Ross, M.D., Nashville.)



## CLINICOPATHOLOGIC CONFERENCE

### Arsenic Poisoning Following Therapy for Amebiasis\*

Charles J. Deere, M.D., and Thomas C. Gladding,  
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#### Clinical Course

This 20 year old white woman entered Baptist Memorial Hospital on Sept. 4, 1958 with a 2 weeks' history of abdominal pain which during the last two days became severe and was associated with nausea and vomiting, nervous sweats, and jerks. The menstrual period was one week overdue; previous period was scanty and irregular.

There was a 3-4 year history of amebiasis, recently treated with Balarsen, Milibis, and another unknown drug. There was also a history of recent "kidney trouble." Family history was noncontributory. Patient was married about three weeks before admission to the hospital.

On admission the temperature was 99 degrees. There was tenderness—almost rigidity—of the lower abdomen with a tender mass in the right adnexal region. Hgb. was 11.7 Gm., Hct. 36, WBC. 22, 150 with 90% polys (toxic granulations). Urine was pale, coffee-colored, opaque and acid, Sp. Gr. 1.015, protein 2 plus, trace of sugar, acetone negative, WBC. too numerous to count, RBC. up to 10.

Eight hours after admission the patient was semi-conscious. She would not respond to commands but appeared awake. There was a slight lateral nystagmus. She would not open her mouth but did grit her teeth occasionally. The neck was not stiff. Heart and lungs were negative. The patient made no response to abdominal palpation, but the muscles were not relaxed. On rectal examination, there was a mass anteriorly believed to be the uterus; the cervix was not palpated. The deep tendon reflexes were hyperactive but equal. There was some generalized muscle spasm in all extremities. Later the same night she began to respond to her name. A blood sugar (after dextrose infusion) was 151 mg. per 100 cc.

At 10:30 p.m. on the night of admission, the patient went into a state of coma in which she remained for awhile. When examined four and one-half hours later (at 3:00 a.m., Sept. 5), her jaws were clamped, and she was gritting her teeth; neck was not stiff; muscle spasms were present in the neck, arms and side of face; pupils normal; no rigidity; abdomen soft but slightly tender. Spinal fluid pressure was 170 mm., fluid clear, 2 RBC., 4 WBC. (2 segs, 2 lymphs), protein was more than 400 mg. per 100 cc. (462 by turbidometry). BUN. was 16 mg. per 100 cc.; urine was hazy, Sp. Gr. 1.042, trace of protein, sugar 3 plus, acetone positive, 1-2 WBC., 0-2

RBC. Serum Hogben test was positive. Later the same day, blood sugar was 176 mg., BUN 10 mg., serum amylase 123 mg. per 100 cc., and serum chlorides 105mEq/L. Apparently the patient developed convulsions, but after a tracheotomy was performed the "convulsions and spasms became less severe."

Since admission, the patient had been on chloramphenicol and Combiotic therapy and she was now placed on intravenous penicillin therapy and was given 20,000 units of tetanus antitoxin. Still later on (Sept. 5), the pupils became dilated and fixed with no reaction to light. Regular insulin was given to cover glycosuria. In the afternoon she became cyanotic and stopped breathing; blood pressure and pulse were normal. A Monaghan respirator was applied. Coramine and Solucortef were given intravenously. Bilateral frontal burr holes were made; the brain was exceedingly soft and extruded through the dural incision. The ventricles were completely closed from severe swelling and edema.

Biopsies were taken (S-58-10954) which showed a slight perivascular monocyctosis. Postoperatively, her condition remained extremely precarious. She became much weaker and was kept alive by the respirator. On Sept. 6, the temperature was 103.6 and on Sept. 8, it was 104. On Sept. 7, the urine output decreased to 115 ml. with a total intake of 2200 ml. I.V. fluids minus 880 ml. drainage by nasogastric tube. BUN. was 63 mg. per 100 cc. The patient aborted on Sept. 8, with no bleeding (presumably the blood pressure too low). A ventricular tap was attempted without success. The 24 hour intake (7:00 a.m. Sept. 8-7:00 a.m. the 9th) was 1550 ml. minus 840 ml. by nasogastric tube; urine output was 25 ml. On Sept. 9, a spinal fluid pressure was 98 mm.; the fluid was xanthochromic, sugar 38 mg., and chlorides 649 mg. per 100 cc., cells 65 (27 segs, 21 lymphs, 17 large mononuclear cells). Urine arsenic was 0.8 micrograms per 100 ml. urine (normal less than 0.01 milligrams per 100 ml. urine).

The patient expired at 3:40 a.m. on September 10, 1958.

DR. CHARLES J. DEERE: We all approach these discussions with some trepidation. The first time I read this protocol, and I admit that it was read quite hurriedly, I felt that it was pretty much an open and shut case. Upon reading it a little more carefully, I became rather disturbed about the chemical values given in the last two or three sentences of the protocol. I might as well mention those at this time. I presume these studies were done near this patient's demise: an analysis of the urine for arsenic. We are told that the urine contained 0.8 micrograms per 100 ml. In the same sentence, we are

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told that the normal is less than 0.01 mg. per 100 ml. of urine. You will notice that the value changed units from micrograms to milligrams, and when this is translated the normal value becomes 10 micrograms per 100 ml. There are values in various papers that indicate a normal individual may excrete up to 0.5 milligrams of arsenic per day. This makes me pause, and I, therefore, approach the discussion with much less confidence than I would have after the first reading. This indicated that this patient had somewhat less than one-tenth of the amount of arsenic in the urine than is considered as the upper limit of normal. Of course, we have to assume that there are no typographical misrepresentations and having been assured that there are not, we have to evaluate our confidence in the laboratory people who did this procedure, and I think we agree we will have to accept their analysis as a valid one, having no reason to suspect the contrary.

With that introduction, suppose we start working down the protocol. This 20 year old white woman entered the hospital with a two weeks' history of abdominal pain. This, of course, is a very nonspecific complaint. It became severe during the last two days so we must assume that she had been ill for two weeks and had become more ill during the last two days. This was associated with nausea, vomiting, nervous sweats, and jerks. We are not told that she had any diarrhea or evidence of enteritis, as is common with relatively acute arsenical poisoning. Assuming that this is, as it seems to be, most likely a poisoning, it would seem that something had been added relatively recently and that it should be classified as subacute, if not acute, rather than a chronic type of disturbance. The menstrual period was one week overdue. The previous period was scanty and irregular. This history is in keeping with information about an abortion given later in the protocol.

A three to four year history of amebiasis is something I never know how to evaluate. We do not know the reliability of prior examinations this patient has had. It states she has been treated recently with two ar-

senicals and another unknown drug. I am not sure we are to assume this other drug was used to treat amebiasis or if it was just another unknown drug. I am told that the patient brought in a bottle of tablets which could not be identified, but it was understood that these tablets had been prescribed to quiet the patient's nerves. There was also a history of recent kidney trouble, which could mean almost anything. Most kidney trouble in the history, of course, means some disturbance of micturition. The family history was noncontributory. The patient was married about three weeks before admission to the hospital, which, presumably would be following her pregnancy. On admission her temperature was within reasonable limits. There was tenderness, almost rigidity, of the lower abdomen with a tender mass in the right adnexal region. Hemoglobin was only mildly depressed. There was considerable leukocytosis with a sharp shift to the neutrophils and toxic granulations. The urine was described as pale, coffee colored, opaque, with two plus proteinuria, only a trace of sugar, and white cells too numerous to count. Later in the protocol, another urinalysis indicates that the white cells were thoroughly within normal limits. There were very few red cells in the urine. Certainly, as it is recorded here, it is inadequate to account for the color of the urine, which would tend to make one suspect the presence of some unidentified pigment. It could have been pigment of the hemoglobin series. Within a few hours, there was a marked disturbance in this patient's state of consciousness and her ability to respond. She had lateral nystagmus, gritted her teeth, and was uncooperative. It is reported that the neck was not stiff. Upon examination a few hours later, there still was poor relaxation of the abdominal muscles. Rectal examination revealed a mass, believed to be the uterus. The deep tendon reflexes were hyperactive but equal. This is rather interesting. I am not sure how much bearing it has on this case. If this patient had had exposure to arsenic in toxic doses for several days to a few weeks, the chances of her having had peripheral neuropathy or neuritis would be pretty good. This, of



course, is against peripheral neuropathy. If such were present, one might expect the reflexes to be absent. Another point bearing on this, in a negative way, is that the neuropathy of arsenical toxicity is sensory in involvement and is then followed by complete sensory and motor involvement. We have no indication here that this patient had any complaint on admission that would be referable to a sensory disturbance in the peripheral nerves, no parasthesias, hypesthesias, or anything of that type. In acute poisonings, such as incur in dusting with arsenical insecticides, one gets a sizeable slug of arsenic and is likely to present a peripheral neuropathy within a matter of days or certainly within a few weeks.

The blood sugar after an infusion was what one might expect, and I do not think that this has any particular bearing on the illness. Late on the night of admission, she went into a coma. Still later, her jaws were clamped, she was gritting her teeth, her neck still was not stiff, and she had muscle spasms in the neck, arms, and side of the face. This is not the picture of peripheral nerve involvement, but this would suggest irritability centrally. The spinal fluid findings at this time (pressure was a little more than average, and the protein content was quite high without any cellular reaction) are the type of findings one might get with the so-called Guillian-Barre syndrome. They do not suggest an inflammatory process. The leukocyte count was more suggestive of a degenerative process of neural tissue which certainly would be in keeping with the encephalopathies that are associated with arsenical poisoning. At this time, the blood urea nitrogen was still within normal limits. Later, there was a urinalysis with a high specific gravity, but the urine contained three plus sugar which would alter it. Then there is confirmation from the laboratory of the pregnancy. Later on in the course of the patient, the blood urea nitrogen was elevated and the urine output sharply diminished. This is a sickness which was manifesting itself in the kidney on admission, but at the time had not reached the peak of its activity as regards the renal function. Convulsions are a manifestation

of irritability of intracranial structures. She had treatment of multiple antibiotics and tetanus antitoxin. We can imagine the situation facing the person caring for this patient at this time and the effort to use every reasonable means of treatment to try to combat a very serious illness. Later, her pupils became dilated and fixed with no reaction to light, heralding her exodus. Later, she became cyanotic and stopped breathing. A respirator was used, as were stimulants and Solucortef. Bilateral frontal burr holes were performed and indicated that the brain was quite edematous and possibly, even more than that, exceedingly soft. Possibly that means that a degenerative process had been occurring and the brain was under considerable pressure causing it to extrude through the dural incision. The ventricles were completely closed due to severe swelling and edema. I do not know how to interpret the biopsy taken at that time. Postoperatively the patient's condition remained precarious. She was kept alive in a respirator. Her urine output decreased. The blood urea nitrogen climbed. The patient aborted four days after admission, and her blood pressure was too low for there to be bleeding associated with the abortion. They were unable to do a ventricular tap, presumably because the ventricles had been pushed down by swollen cerebral tissue. We are given information here that in spite of the intake of two liters of fluid within a day, the urine output had dropped down to 115 ml. and even less in a day. Later on, she had spinal fluid which was xanthochromic, indicating, I think, further evidence of degeneration of tissue or hemorrhage into degenerating tissue. By then, there was a pleocytosis in the fluid.

I believe this information, particularly the fact that this patient had taken at least two arsenical drugs in unknown doses recently and the clinical picture presented by her symptomatology, would be in keeping with relatively acute, or subacute, severe, arsenical intoxication. All these things can be explained by arsenical intoxication. We have not been told anything about jaundice, which would be an-



other point that would be somewhat in its favor.

We might review a little bit about these drugs. Balarsen is a comparatively new product and has not been in use a great length of time. It is a combination of trivalent arsenic, which is the more toxic arsenic, in combination with some sulfur-containing product which the manufacturing company doubtless feels would tend to diminish the toxicity of the arsenic. However, arsenic is a protoplasmic poison that does what it does on the amoeba and *Trepionema* by binding sulfhydryl groups that are a part of necessary respiratory enzymes of these organisms, and the human body contains similar enzyme systems. I think if, in this product, the arsenic were thoroughly bound to the sulfur, it would probably be useless as a therapeutic agent. All of these agents undergo changes in the body and trivalent arsenic is elaborated from them, which then exerts the desirable effects on the amoeba. The therapeutic dose in an adult of normal size is given in the company literature as not more than 10 milligrams per kilogram per day, not to exceed 500 milligrams in a day, and the course not to exceed five days. The course is not to be repeated within a few weeks. Of course, we have no knowledge of how much this patient took. The other agent, Milibis, is another organic arsenical which also contains Bismuth. It is, like other pentavalent arsenicals, quite poorly absorbed from the intestinal tract and is recommended only for intestinal amebiasis. One would speculate that this is relatively a much safer type of drug. The old standby, Carbarsone, is another pentavalent arsenical, whereas Balarsen is a trivalent arsenical. Incidentally, Carbarsone, a tremendous amount of it, has been used over a lengthy period of time and it must be a relatively safe drug when used as directed. There have been only two fatalities recorded from its use according to Goodman and Gilman, and at times it has been taken in much larger doses than recommended. One of the manifestations of arsenical poisoning is extremely severe capillary dilatation and damage which leads to loss of fluid from the vascular system and then

there is the additional irritation of the gastro-intestinal tract with loss of a considerable amount of fluid from the body through the intestinal tract, dehydration, a potential shock state which leads to the ingestion of water, the loss of electrolytes leads to hypertonicity and often to muscular cramps, etc. Severe capillary damage also takes place more or less all over the body and apparently would be the pathological physiology of the encephalopathy that this patient had.

We have seen a rare instance at the John Gaston Hospital of another drug or group of drugs which may produce a picture clinically quite similar to this. The fact that this patient knew, that is we take it she knew she was pregnant, makes me wonder if we might be dealing with another type of poisoning. Now, the reason I speculate about this is the information given about the excretion of arsenic. I am referring now to an abortifacient agent, so called, which anyone can buy without a prescription, by the name of Ergoapiol. This is a mixture of three violent drugs suspended in castor oil and comes in a clear gelatin capsule. The agents present are ergotrate, apiol, which is a turpine or camphor-like drug derived from parsley, and the most potent of them is oil of savin, which is an extract of an oil from one of the junipers. This material has had a popularity as an abortifacient agent for many years. I recall at least two patients at the John Gaston Hospital within recent years who died with urinary suppression, icterus, and cerebral disturbances much like this patient had when she expired. I have been unable to find very much in the literature about oil of savin, but here is a rundown of symptoms that are produced by toxic quantities of this agent, and it does not take very much of it to be toxic, a matter of a few minims of it may be fatal. The symptoms include burning, nausea, vomiting, colic, diarrhea, vomitus and diarrhea may both be bloody, congestion of pelvic organs, hematuria, convulsions, and coma; just about everything that this patient exhibited. I find it difficult to believe that this patient had a condition other than poisoning, and I shall end with speculating that this is a

case of arsenical poisoning and that for some reason, the laboratory information is misleading and, if this information is true, I shall offer an alternative diagnosis of poisoning by oil of savin or something in that general nature.

DR. WILLIAM T. SATTERFIELD: I saw this patient on the day of admission, and it was very hard to find out the type of treatment that she had had. She did not live at home and was only married three weeks. Her mother, who was a very intelligent lady, knew that she had been sick but did not know what type of treatment she had had. However, I did call two doctors, and it seems that she had had some 8-10 doctors treat her for amebiasis. The two doctors that I talked to gave these two drugs that were mentioned. One other thing that we found out from the patient's mother on the day of the patient's death, which I think would make a whole lot of difference in the diagnosis, was that the girl had a rash that was treated by one of these doctors for about two weeks immediately before the last illness. This rash had almost disappeared, evidently, when she died, because we saw no sign of it. There was a rash present at some time during her last 3-4 weeks. The other drugs that I could trace down were an iodine drug taken a year or so before this and the nerve tablets that were mentioned. The Balar-sen was given the patient recently by the last physician to treat her about two months prior to the admission to the hospital. The other drugs had been taken off and on for a period of several months. However, the Balarsen definitely was a new prescription according to the druggist about two months or so before the patient came into the hospital.

DR. DEERE: This is another matter which troubles me about the reported analytical values which are sharply less than are considered within the normal limits of everyday exposure to arsenic. Knowing that this girl had arsenic relatively recently, I am puzzled by why this urinary value would be so low. Now, possibly we should speculate that something had happened to the kidney to cut down on its excretion as it cut down on urea nitrogen excretion, but

I do not think that is a valid objection. These reported clinical analyses make me skeptical that this is arsenical poisoning although I will still keep it as a first choice.

DR. C. V. DOWLING: How do you account for the polymorphonuclear leukocytosis?

DR. DEERE: I think there are several things that could well account for it. I am sure that this girl had a good deal of inflammation going on in her body. The toxic action of these agents that we have been talking about are even stronger on fetal tissue than on maternal tissue, and it may well be that she had an element of dead, retained fetus contributing somewhat to the picture. I suspect she had a good bit of tissue necrosis going on in the body also. All of these things, I think, would tend to give a sharp leukocytosis and a shift to the left.

DR. BEN E. EVERETT: I would like to ask Dr. Deere about the kidneys. As I recall, when I was a student or intern, an entire family came in for arsenic poisoning, and I think all but one died. In each of the fatal cases, the death seemed to be related to kidney shutdown. The coma came only after the urinary output had decreased. The urine from all these patients was loaded with tubular casts and red cells even before the non-protein nitrogen went up. That is what makes me suspicious about this case. The patient had these symptoms. She was almost terminal before the urinary output dropped. I was under the impression that usually, with heavy metal poisoning, it is a kidney shutdown type of death. Being an obstetrician, I am always suspicious of these women who are just married a short time. I am suspicious of some type of criminal abortion or criminal abortion attempt from below and I wondered why we did not consider the possibility of some type of septicemia or tetanus. I would like to ask if there were any cultures made of the blood or uterus at the time she aborted and how far along she was clinically. Or in other words, could she have been further along than the history indicated? I believe the incubation period of tetanus is



some several weeks, and this could possibly have been an etiological factor.

DR. SATTERFIELD: There was no indication of septic abortion and no cultures were made.

DR. S. FRED STRAIN: How is the lower abdominal pain accounted for?

DR. DEERE: Abdominal pain is a very characteristic symptom of arsenical poisoning.

DR. JOHN Q. ADAMS: What significance was attached to the tender mass in the adnexa?

DR. SATTERFIELD: The mass was the uterus.

#### Pathologic Findings

DR. THOMAS C. GLADDING: This is a case of arsenical intoxication. At the time of autopsy, I did not know it was arsenical intoxication, and I tried my very best to make a case of lupus out of this because there is a severe generalized disease with some arteriolar involvement, but I was unable to prove the diagnosis of lupus. Some of the tissues were sent to one of the very best toxicologists in the country who wrote back that he found a level of arsenic in the liver of 80 gamma or micrograms/100 grams of liver, which he considered to be enough for a legitimate case of arsenic intoxication and comparable to some levels that have been reported in Carbarsone toxicity. With this information, I have made a final diagnosis of arsenic intoxication. The toxicologist who examined the tissue said that he did not feel there was much sense in pursuing arsenic levels in other tissues because that would be frosting the cake.

I thought this woman certainly had an amoebic colitis, grossly. She had a severe colitis with tiny punctate red ulcers scattered throughout the mucosal surface. I did not think that I was going to have any trouble proving the diagnosis. Unfortunately, I cannot prove it. She had no amoebae in the feces either on direct examination or concentrated examination at the time of autopsy when we took fecal specimens, and multiple sections of the colon through the areas of ulceration do not show any amoebae. She did have, as I mentioned, a tremendously severe colitis which may have been amoebic originally,

and perhaps she had enough arsenic to irradicate the amoeba. The submucosa was tremendously thickened. There were numerous thrombi in the veins, which could have been secondary to the inflammation, or may have been a manifestation of arsenical toxicity of the endothelium. There was a mixture of acute and chronic inflammation, predominantly acute inflammation, which involved the entire thickened submucosa and even some of the adjacent muscle layer. This inflammation was present from the cecum through the sigmoid colon and was present, although less marked, in the rectum.

Probably the most important anatomical finding in this case was a severe degree of cerebral edema. At autopsy, the brain was markedly swollen and extremely friable. The swelling of the brain had reduced the ventricles to slit-like spaces which explains why the surgeon was unable to do a ventricular tap. It was extremely difficult to remove the brain intact due to the extreme degree of friability. There was injection of the white matter of the cerebrum which suggested petechial hemorrhages, particularly in the centrum semiovale. However, microscopically, there were no petechial or perivascular hemorrhages, but rather a severe degree of congestion. Also microscopically, there was evidence of cerebral edema. Scattered neurons showed some early degenerative changes with nuclear pyknosis. Scattered capillaries in the cerebrum showed a perivascular monocytosis which was rather mild and was the same change seen in the biopsy specimen. There were thromboses of several subarachnoid vessels over the cerebrum and also over the mesencephalon. Some of these thromboses were near the operative site, but those over the mesencephalon were definitely away from the operative site. This could have been due to arsenic intoxication on the endothelium or, more probably, to the severe degree of swelling and increased intracranial pressure.

Other findings consisted of almost complete ischemic necrosis of the anterior lobe of the pituitary which could have been caused by one or more of three factors, mainly the enlargement of the pituitary



which occurs normally during pregnancy, pressure on the blood supply by the swollen brain, and lastly, to the shock which the patient exhibited. The corpus luteum of pregnancy was also necrotic and the necrosis seemed to be of the same age as the pituitary necrosis. There were multiple fibrin thrombi in scattered arterioles and veins in the liver, kidneys, brain, and periaortic tissue. However, these were few and were not associated with any fibrinoid degeneration of the vessel walls. A very, very faint papular rash was present on the skin of the upper chest. There was some retained placental tissue in the uterus, but there was no evidence of sepsis. There was a marked edema of the interstitial tissue of the renal pyramids. However, there was no tubular epithelial necrosis. The edema was quite marked and probably represented sufficient evidence to establish a diagnosis of acute renal insufficiency or so-called lower nephron nephrosis. There was also a severe, acute, ulcerative esophagitis which might possibly have been due to the presence of an irritating nasogastric tube. Such an esophagitis has been described in one case of arsenical poisoning which is recorded in the literature. In the lungs, there was edema and bronchopneumonia which probably represented the final, terminal cause of death. There was congestion of the spleen and lymph nodes and there were small foci of polymorphonuclear leukocytic infiltrations with necrosis in the germinal follicles of the Malpighian corpuscles.

The mechanism of organic arsenic toxicity, according to Radke, when the compounds are used therapeutically may be on the basis of (1) hypersensitivity (2) overdosage (3) toxicity of the preparation. Radke and Baroody reviewed the literature and could find only one reported case of a fatality due to Carbarsone therapy and one other case in the files of the Armed Forces Institute of Pathology. They reported on 45 cases of Carbarsone toxicity in more than 1,500 cases treated with Carbarsone for amebiasis. Nineteen of these cases, including the two fatalities in the series, followed medication with Carbarsone later shown to be contaminated with arsanilic

acid, which could have been present either by hydrolysis as a result of storage, or as a result of improper purification of the product originally. In both of the two fatal cases, the concentration of arsenic in the liver was 3 micrograms/gram of liver. These levels are considerably more than was present in the case under discussion. The authors also mentioned that the cases with arsenical encephalopathy revealed elevated spinal fluid protein without associated chemical or cellular abnormalities. This definitely was the situation in this case.

Balarsen is a trivalent reduced form of pentavalent acetarsone in combination with BAL. Acetarsone (Stovarsol) is N-acetyl-4-hydroxy arsanilic acid, the hydrolysis of which could conceivably liberate arsanilic acid. I cannot state that this was what happened in this case.

This patient had a normal level of urine arsenic. This is not surprising in view of the fact that organic arsenicals are stored in the parenchymatous organs, especially in the liver. When heavy metal poisoning is suspected and the level of the metal in the urine is not diagnostic, it may be possible to establish the diagnosis by giving the patient a chelating agent to draw the metal out of the tissue so that it can be excreted in the urine. In the case of lead, EDTA should be used. In the case of arsenic, BAL should be used. The use of chelating agent for diagnostic purposes will increase the urinary output of the metal tremendously.

PHYSICIAN: What is the normal level of arsenic in the human hair?

DR. GLADDING: I must admit that off hand, I cannot tell you.

DR. DEERE: Let me answer that one. The question brings back memories of taking an oral examination at the Cook County Hospital where I had a case of arsenic poisoning that troubled me no end, and one of my examiners, an old time professor at Rush, apparently found in looking through my credentials that I was interested in chemistry. He asked me "How much arsenic is present in hair normally?" I laughed and told him that I had no idea. He said, "One part in one million. I looked it up just before I came in here."

DR. GLADDING: According to Glaister in his book on toxicology, the level of arsenic in tissue is considered as negative when less than 20 micrograms/100 grams of tissue. Between 20-100 micrograms is suggestive and interpretation depends upon the whole picture. Over 100 micrograms is considered diagnostic.

The liver parenchyma was normal in this case. There were a few inflammatory cells in the portal tracts, but the liver was not

abnormal grossly or microscopically. There was no jaundice.

#### References

Clinicopathological Conference. *Postgrad. Med.* 24: 691, 1958.

RADKE, R. A. and BAROODY, W. G.: Carbarstone Toxicity: A Review of the Literature and Report of 45 Cases. *Ann. Int. Med.* 47:418, 1957.

GLAISTER, J.: *Medical Jurisprudence and Toxicology*, Ed. 7. The Williams and Wilkins Co., 1942.

## President's Page



HARMON L. MONROE

### The Doctor



Lord, who on earth did minister  
 To those who helpless lay,  
 Guide now the doctor who fulfills  
 Thy golden rule today;  
 Give to his eyes the power to see  
 The source of hidden pain,  
 Unto his hands the healing touch  
 That makes faith whole again;  
 Give to his voice the ring of truth  
 That comforts and brings cheer,  
 To every cry of anxious heart,  
 Let him be swift to hear.  
 From thy great store of wisdom fill  
 His mind and give anew  
 Thy strength when hours are long  
 And work seems more than he can do.  
 Lord, help him see, when tired and worn  
 From thankless tasks well done,  
 That his good fight is honored still  
 And bid him carry on.  
 He is Thy instrument; he stands  
 For truth and good alone.  
 Lord, guide the doctor, for his work  
 Is evermore Thy own.



*Merry Christmas!*

*H. L. Monroe, M.D.*



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DECEMBER, 1959

## EDITORIAL

### RESUSCITATION PROBLEM

Newspaper, radio and television media have publicized cardiopulmonary resuscitation procedures in recent years to such an extent that there is one instance of legal action against a physician because he failed to perform a thoracotomy. Fortunately this case was dismissed by the presiding judge.

The surgeon faced with cardiac arrest at the operating table has the indications and the means at his disposal to attempt to re-establish cardiorespiratory function.<sup>1</sup> Beck has divided the treatment of cardiac arrest into two steps. (1) The re-establishment of the oxygen system (the emergency act) by assisted breathing and cardiac massage. (2) The restoration of the spontaneous heart beat. This division is important because it emphasizes the emergency of getting oxygenated blood flowing through the circula-

tion by mechanical means and leaves other considerations, such as defibrillation of the heart, resumption of spontaneous cardiac contractions, and reawakening of the respiratory center for subsequent consideration. Once the oxygen system has been re-established sinus rhythm frequently starts spontaneously. If fibrillation is present or commences during massage, electrical defibrillation should be used. Drug therapy also may be useful. Trained personnel and adequate facilities usually are available in the operating room for successful resuscitation.

To help the physician confronted with an instance of cardiac arrest outside the operating room, Southworth<sup>2</sup> has proposed four questions which the physician should consider before deciding whether or not to attempt cardiac massage. He should run them rapidly through his mind before making his decision. (1) Has the patient the fundamental health to justify restoration of life? Obviously one would not wish to resuscitate a patient who has a hopeless prognosis. (2) Is it reasonably certain that there is still time to institute massage and that the critical time limit (4 minutes) has not passed? Clinical series in man suggest that 3 to 5 minutes represents the critical time limit for full restoration of cerebration. (3) Has the physician the training, the equipment and the assistance necessary to undertake both cardiac massage and assisted respiration and to carry them through to a successful conclusion? Initially it is only necessary to have two people who are reasonably trained, one with a scalpel and the other to start mouth-to-mouth respiration. Proper rebreathing apparatus must be available, however, by the time the chest has been opened, and eventually a skilled surgical closure in the operating room is needed. Because of brisk bleeding expected with effective cardiac action, it is inadvisable to attempt cardiac massage, except under unusual circumstances in a patient's home or in the usual doctor's office away from a hospital. (4) Is the arrest iatrogenic? If cardiac arrest occurs during cardiac catheterization

<sup>1</sup>Southworth, H.: The Resuscitation Problem. *Circulation* 20:946, 1959.

<sup>2</sup>Southworth, H.: Cardiorespiratory Resuscitation. *Am. J. Med.* 26:327, 1959.

or from an overdose of digitalis, the physician feels a personal responsibility that must affect his actions.

Because the occasional case may justify cardiac massage, it is recommended that each internist and general practitioner, as well as each surgeon, think through the problems of cardiorespiratory resuscitation and decide what criteria he believes must first be met.

A. B. S.



## LEGISLATIVE ACTION MEETING

*The response by doctors and others to the call to attend the meeting of November 15, for discussion of the Forand Bill, and its implications, was both amazing and gratifying. This augurs well for the participation of professional groups in political action.*

*Who knows what the needs are for the Nation's health as well as the medical and allied professions? Certainly not political pressure groups who have axes to grind, or wish tax money to be extracted for the purpose of paying for their personal health bills so they may divert their own money for other purposes.*

*The following papers by Tennessee citizens put the Forand Bill and political action in such bold relief that what they contain could not be presented more forcibly.*

*All are urged to read them!*

*Editor's Comment*



**The Forand Bill—What It Means To You**  
By RALPH O. RYCHENER, M.D., President-Elect, T.S.M.A., Memphis, Tenn.

Most of you, I am sure, recall vividly the efforts of the proponents of national compulsory health insurance to palm off on the American public their brand of socialized medicine which would have resulted from the passage of the Murray-Wagner-Dingell Bill in the middle and late nineteen-forties.

Those of us within and without the medical profession who were able to defeat this proposal won the battle, but the war continues. Failing in their frontal assault to carry the field by storm, the protagonists of the social-welfare state have developed

other and more effective tactics. These might be described as limited offensives, attempts to obtain their total objective through piecemeal attacks.

How successful have they been? Figures compiled by the American Medical Association reveal that today, between 43 and 45 million Americans are eligible for complete or partial medical and hospital care as provided by the Veterans Administration, Medicare, and by other such programs. This fulfills the prediction that my personal friend, General Carl Gray, then head of the V.A., made to me in 1947, when he said that socialization of medicine would come in through the back door by liberalization of the V.A. laws. Any veteran can now perjure himself without question in entering a V.A. Hospital by simply signing a paper to the effect that he cannot pay for medical services.

Now, these same proponents of socialized medicine have hit upon a new concept of operation. Their proposition is, briefly stated, this: Millions of Americans over the age of 65 are rusting and eroding away because they need medical and hospital care; the free enterprise system of health care is unable or unwilling to provide for the needs of these people; therefore, the federal government must take over the responsibility of the health care of these people.

I shall not at this time attempt to expose the fallacy of this so-called "logic," except to say that their case will simply not hold up under an objective and factual examination. I should like to point out that Tennessee physicians have adequately established their concern with the health needs of those citizens of our state who are indigent, or in such modest financial circumstances that the cost of medical and hospital care imposes an undue hardship upon them. I refer to the Indigent Hospital Program, sponsored in the Tennessee Legislature by the Tennessee State Medical Association under which the doctors of Tennessee agree to treat, without charge, those persons requiring hospitalization and determined to be medically indigent by local screening committees within the counties in which they live. I refer also to the Tennessee



Plan, the T.S.M.A.'s program of insurance to provide medical care to persons in reduced levels of income. I also point to the concept of the Senior Citizen's policy, now being developed by the Association's Pre-Paid Insurance Committee, which will further extend the availability of medical care to Tennessee's older citizens at prices they can afford to pay.

Rather than elaborate on what is being done in Tennessee—and our programs here parallel those of the medical profession in other states—I should like to report on Tennessee's experience with a program so similar in concept to that called for by the Forand Bill that the two might well have been cast in the same mold.

I spoke a moment ago of the Indigent Hospital Program, sponsored by T.S.M.A. This program was enacted in 1953 but was seriously handicapped by a paucity of funds. The 1955 legislature increased the appropriation, but the amount available to make the program effective was still woefully inadequate.

In 1957, the Governor of Tennessee requested approval of T.S.M.A. to obtain matching federal funds to augment the program. The Board of Trustees agreed to the use of federal money, *providing* the entire program would be unaltered and would continue to be administered by the Tennessee Department of Public Health.

Unfortunately, it was not learned by the state administration or by T.S.M.A. until after the state appropriations had been approved, that the new federal and state money, now available in an adequate amount, could not be utilized to expand the Indigent Hospital Program.

Instead, federal regulations required that the welfare part of these funds should be administered by the Department of Public Welfare, and those regulations further precluded any screening to determine medical indigency. Any person eligible for financial aid under any of the four state welfare programs was automatically eligible for 30 days free hospitalization each year, and these people were so informed.

The reaction was staggering. Doctors and hospitals throughout the state were immediately swamped by welfare recipients

and their families, demanding that the recipients be given immediate hospitalization. The pressure on the individual physician to admit these people was terrific. The load foisted off upon the hospitals was alarming.

I am sure there is no necessity of further detailing this chaotic situation to those of you who experienced it and are still subjected to it.

It is highly significant, that in the first year of its operation, 63% of the persons hospitalized under the Welfare Hospitalization Program were 65 years of age or older.

It is also significant that, because of the demand for the "benefits" of this program, it has been forced to reduce the annual period of available hospitalization from thirty days to ten.

Thus, we in Tennessee have experienced a type of "little Forand Bill." We have seen the conditions which result from a governmental agency's offering of a "free" health-care package on an across-the-board basis. We have felt the pressures exerted upon us, as physicians, to get mother, or grandfather, or Uncle Ed into the hospital so the family can enjoy thirty days free of the responsibility of having to care for him. We have seen the chronically ill, whose conditions cannot be helped by hospitalization, occupying critically needed beds.

We have witnessed the layman, the patient or his family, usurping from the physician the initiative in determining the necessity for hospitalization.

We have seen the prelude of things to come, if the Forand Bill is enacted into law, in a close parallel on a limited basis, of the results of such a philosophy of governmental health care.

Let us project this Tennessee experience to the extent that we can envision the impact of such a program on a national scale.

What about its financing? Mr. Forand proposes to pay the surgical, hospital, and nursing home bills of all recipients of Social Security by increasing the present Social Security tax by one-quarter of 1% on the amount paid by both the employee *and* the employer, a combined tax already scheduled to reach a total of 9% by 1969.



Now it is historically true that a tax, once established, tends to increase rather than diminish. When we take into consideration the fact that the present number of Social Security recipients, 15-million, will increase to at least 25 million by 1970, who among us would be sufficiently naive or sanguine to expect that a *further* increase in the Social Security tax would *not* be required to pay for the services which this huge segment of our population would demand?

Yet another layer must be added to the tax structure required to pay for such a program. We can most assuredly anticipate that present hospital and nursing home facilities will prove greatly inadequate to care for the millions of claimants for the service the government has promised, by law, to furnish them. Additional taxation will be necessary to obtain funds to finance the construction of these new facilities. One can only imagine the number of billions of tax dollars required for such a program.

And yet another alarming prospect to this threat is that once the government enters into a contract with the purveyors of health care, it must assume custodial responsibility for the moneys spent. This would, of course, entail supervisory and auditing functions on the part of the federal government within the administrative framework of hospitals and nursing homes. And once the camel gets his head into the tent, the rest of him is sure to follow.

The incipient long-range threat of such legislation is no less alarming. If this philosophy becomes established by Congress as law, and if the social security concept is to be changed from that of dollar benefits to service benefits, and if the Congress agrees that the financing of the medical and institutional needs of one segment of the population is the responsibility of the federal government, then the logical extension of such a philosophy will be to include *all* age groups. And if the proponents of socialized medicine are successful in their efforts to secure adoption of the philosophy contained in the Forand Bill, they can more swiftly move toward their goal of complete medical socialism from their strong position of established acceptance and precedent.

I should like to quote briefly some of the remarks of Mr. B. D. Freamo, Assistant Secretary of the Canadian Medical Association where, as he says, physicians took the attitude, "It can't happen here," only to discover it could happen there.

Mr. Freamo said this and I quote, "I cannot foresee that the art of medicine can possibly be enhanced under the conditions which must eventually be associated with government control. Further progress in the quality of medical care is not consistent with a program which must stress equality of care."

"In 1959, the British Health Service is entirely dependent upon the physicians who were practicing or in training ten years ago. What will happen in fifty years when the service is dependent upon those physicians who were attracted by the rewards which the service provides and when the entire public, except for the very aged, never knew a time when medical services could not be obtained gratuitously?

"The health care of our nation is as dependent upon the attitude and response of the public to medical advice as it is dependent upon the skill of physicians. Complete elimination of personal responsibility will tend to reduce the effectiveness of component medical opinion and thus negate further medical progress." That is the opinion, based on experience, of a Canadian layman.

To many the term socialism has lost its terrors, and more and more there is a shifting of responsibility from the individual to the state which means collectivism rather than free enterprise. We must preserve a climate which is conditioned to the preservation of America.

The significance of the problem with which we are faced is, I hope, readily discernible to all of us. There can be no equivocation. If we are to maintain the American free enterprise system of the practice of medicine, and if we are to continue to provide our citizens with the best standards of medical care in the world, and if we are to further elevate those standards, we must vigorously exercise collective and individual action to resist and defeat the efforts of those who would divert us into the path-

way of governmental encroachment which leads only to the quagmire of medical mediocrity.

### The Forand Bill and Hospital Care

FRANK S. GRONER, President-Elect,  
American Hospital Association, Memphis,  
Tenn.

At the outset I should like to reiterate, for the sake of emphasis, a point made by several of the previous speakers, namely, that we must present some positive programs to secure adequate facilities and financing for the care of the aged on a voluntary basis. It is encouraging to see the leadership which the American Medical Association is taking in this matter. Just three days ago, in a meeting between the officers of the American Medical Association and the American Hospital Association, a resolution was passed urging adequate programs in the states and local communities for the care of needy persons—especially the aged needy. I understand that day before yesterday this was approved by the Board of Trustees of the American Medical Association, and I am confident that it will be approved by the Board of Trustees of the American Hospital Association this week. This type of effort, which will give protection to a large number of aged, is what I refer to as some of the positive programs. The Tennessee Medical Association has certainly made great strides to solve this program, and continued energetic support of the indigent program of this state continues to be of paramount importance. There have been numerous other positive programs which have had recent development which I shall not take time to enumerate.

In discussing "The Forand Bill and Hospital Care," I should like to approach the subject on two bases. First, the philosophical, and secondly, to point out some of the portions in the particular bill as I view them as a hospital administrator.

I should like to state that the official policy of the American Hospital Association is in opposition to the use of OASDI as a mechanism to finance the hospital needs of the retired aged at this time. Therefore we are opposed to H.R. 4700.

After extensive study, we concluded that there are at least three dangers inherent in the use of the Social Security mechanism which cannot be avoided. These are of such consequence that it causes us to have serious misgivings with respect to a compulsory health insurance program even for the retired aged. These dangers are:

*First, that the government as a purchaser of so much hospital care would exert the power of the purse in ways detrimental to the interests of hospital patients.*

Since the Federal Government would become a major purchaser of hospital care, it would have to become concerned with hospital costs. This would, we believe, lead to a concern in the administration and operation of hospitals, and because of the intimate relationship of hospital costs to the quality of service would lead to interference in the care of patients.

Any underestimation on the part of government as to the cost of the program is likely to be reflected in pressures to reduce the costs of care which means a reduction in the quality of care.

The use of the Social Security mechanism implies a commitment by the Federal Government of such a magnitude that there is little possibility of later retraction. It is an irrevocable step.

*Second, that there is a real danger the provision by government of prepaid hospital benefits would lead to over-utilization that could not be controlled and thus to run-away costs, with consequences that could be disastrous to hospitals and the public.*

We believe that an alleviation of the financial burden placed upon older persons will naturally result in a sizable increase in their use of hospital facilities. This is a natural and desirable development. But it is desirable only to the extent that their hospitalization represents a medical need and is not for nonmedical purposes. There is a definite danger of abuse both as to the admission of aged persons and the lengthening of their stay beyond the point of medical need.

The acknowledged shortage of desirable housing and custodial facilities for the eld-



erly will increase demands for use of expensive hospital facilities. Such over-taxing of hospital facilities could result in the unavailability of beds to meet the needs of the rest of the population.

Because of the uncertainties associated with the use of health facilities by the aged, and the great difficulties in controlling use and eliminating overuse, the total costs of care may well run to proportions far in excess of what is contemplated in establishing the program. The underfinancing which we believe could result from a total national program to provide care to all retired aged might well be of such magnitude as to create great pressures to reduce payments to hospitals in order to maintain the solvency of the program. Such a result could lead to the bankruptcy of the voluntary hospital system or a serious deterioration in the quality of care.

*Third, that the acceptance of compulsory health insurance for one group of the population would foster its extension to other groups, and perhaps ultimately to the whole population.*

We find it significant that the groups which place greatest urgency upon the use of the Social Security system continue to support compulsory health insurance for the population generally as their long-run objective. This program for the aged, therefore, may be visualized as simply the first step towards eventual compulsory health insurance for the nation.

Pressures from other groups in our population will be exerted either to bring in specified groups or to reduce the age at which an individual may become eligible under the program. Strong arguments of hardship and necessity would undoubtedly be advanced and efforts would be continually made to relieve local and state governments of their responsibility by passing it on to the Federal Government.

We see no sure way that these three major dangers could be avoided. To us they are real dangers and I express them as an earnest belief and not simply as emotional arguments.

We have expressed our grave concerns with respect to the use of the Social Security system to provide health care for the

aged. However, it is our belief that we have a responsibility to be as helpful as we can to the Congress in its consideration of legislation affecting the health of the public and I shall, therefore, comment on particular provisions of this bill in the interest of the beneficiaries.

#### *Service Benefits.*

It is my belief that any program for the financing of hospital care should provide service benefits if it is to adequately protect the patient. There should be a re-examination of the definition of "hospital services" to make sure both that it includes all that is meant to be included, and that it excludes all that is meant to be excluded.

#### *Facilities to Be Used.*

It appears that the bill intends that services not be provided in facilities operated by the Federal Government. However, the bill provides that exceptions may be made by regulation. Any general use of these facilities for a new class of beneficiaries as large as the class contemplated by this bill could do as much as any one thing to undermine the voluntary hospital system.

#### *Eligibility for Hospital Participation.*

Reasonable criteria are necessary to determine the eligibility of hospitals to participate.

#### *Interference in Hospital Operation.*

The provision in the bill forbidding governmental control of the "details of" administration or operation of hospitals troubles us by what it may imply about control of the broader aspects. Aside from the wording, this is a matter that touches on one of our major objections to the use of the Social Security mechanism. We do not believe that any governmental program for so many people can fail to interfere to some extent with the administration and operation of hospitals.

#### *Exclusion of Custodial Care.*

Under any proposal such as H.R. 4700, there is certain to be a great deal of pressure to get people into nursing homes. We do not deny the social justification, under present conditions of housing and the unavailability of personal help, for placing many of these people in institutions. In many cases this may be the best of limited choices. However, it ought to be kept sepa-



rate from a health program, so as not to confuse either the purposes or the costs.

Proper housing for the aged is badly needed, and so are many kinds of nonmedical help to those of limited capacities. These services, even to the medically handicapped, are what we consider "custodial care." The harm in confusing them with health care is more than financial, grave though the financial implications could be: to equate custodial care, in the public mind, with health services could set back our efforts to make people realize what present-day medicine can do for them, and to seek medical help before it is too late.

#### *Payment for Hospital Care.*

I turn now to the provision governing the payment to hospitals. The bill stipulates that payment should be made "on the basis of the reasonable cost incurred by the hospital . . . for all bed patients," with authority to vary the amount where that formula is impractical or inequitable. In general, this approach seems fair and proper. However, we believe that hospitals should be paid fully for the cost of services rendered. But a good many important questions are concealed in any such generalization about hospitals, and I think we should be aware of them and of the wide range which such general language would leave to negotiation and administrative action.

#### *Utilization of Private Nonprofit Organizations.*

The bill authorizes but does not require the use of private nonprofit organizations as intermediaries between the administering agency and the participating hospitals and other providers of care. We believe that nonprofit prepayment plans should be used in this capacity. We have two purposes in mind.

In the first place, use of such an intermediary can do much to avoid governmental pressures and to enable hospitals or groups of them to speak with a single voice. Such an arrangement would help to mitigate the danger of governmental interference.

In the second place, whether the intermediary were an existing Blue Cross organization or some new agency created under hospital auspices, it could bring to bear a

skill and a know-how that could prove most helpful to the government. It is no disparagement of bureaucracy to say that a program such as this will need all the wisdom and all the experience that is available.

#### *Basis of Eligibility of Beneficiaries.*

We are convinced that, for working people and their families, the voluntary prepayment system is a desirable means for financing their health care. We believe it is preferable to any system of hospital care financed by government or by compulsory social insurance. We see no reason at all to provide this special protection to the active employee merely because he has reached 65, or in the case of a woman when she has reached 62.

#### *Avoiding Rigidity in the Benefit Pattern.*

We see in this legislation a danger of freezing patterns of care, and of making more difficult future adaptation to a rapidly advancing medical science. If, for example, it becomes possible in the next decade or two to care for the ills of the aged more largely on an ambulatory basis, would the emphasis which this bill places on institutional care prove an obstacle to shifts in this direction?

Any program that finances some kinds of health care and not other kinds will, I think, inevitably influence patterns of care and tend to create vested interests which may hinder change. There would be an added difficulty in making changes later on, because of the contractual aspect of the social insurance system. Despite the reserved legal power to amend the law, it is extremely difficult to take away any of the benefits which have once been promised and for which contributions have been collected.

We believe that it is essential to build a greater degree of flexibility into any health care program that exists in the present cash benefit structure of OASDI.

Even though all of the changes which have been mentioned for the bill might be accomplished, the American Hospital Association would still be opposed because of the use of the Social Security System as the mechanism for provision of health care. We believe that there is need for further progress in the creation and organization of a

system of institutional facilities that will effectively provide the health services that can most economically meet the health needs of our older citizens without depreciating the greatest possible usefulness of institutions designed to serve the acutely ill patient.

Also, we believe that greater attention should be given to undergirding the present state public assistance programs. If more adequate care was available to persons presently eligible for health benefits under those programs, the need for care of the aged among this group would be met.

### **Tennessee Council on Aging**

THOMAS FRIST, M.D., Chairman, Tennessee Council on Aging, Nashville, Tenn.

Ten years ago had anyone told me I would today be talking before a group concerning the political aspects of medicine I would have considered it ridiculous. At that time I had the feeling that a physician's duty to his profession was to try to live an exemplary life and do as good a professional job as he could. This being done the politics and governmental aspects would never become a problem. While I still believe that our own individual and professional conduct is our most important and potent weapon, it falls short of being enough. In addition, we must now become individually and collectively active and dedicated to the legislative and political aspects of medicine.

The reasons I now feel so strongly about this can best be told in my following remarks. The committee that arranged this program for today asked that I tell you a little about the work the Tennessee State Medical Association is doing regarding the Problems of Aging. Some 15 months ago the State Association appointed me to be chairman of the Committee on Aging.

It was quite apparent that the medical profession must quickly do something in a tangible way concerning the Problems of Aging. Our committee met and decided that the best possible approach was to try to take the leadership and form a Tennessee Council on Aging. After much preliminary work, mainly on the part of Mr. Jack Drake, our Public Relations Executive, the council came into being in an official capacity last

May. I would like to tell you a little of the organization and its accomplishments and plans.

We have 35 different statewide groups as component members. They consist of such groups as the Tennessee State Medical and Dental Associations, the Tennessee Nurses Association, the Nursing Homes Association, the Council of Churches, the Farm Bureau, the Bar Association, the State Labor Union Association, Blue Cross and other insurance companies, plus 23 other organizations interested in the Problems of Aging.

We have set up a resource and planning committee. Already, we have instigated and encouraged the building of modern nursing homes, apartments and homes for the aged. After considerable effort, with the help of your State President Dr. Monroe, we were able to get the Governor of Tennessee to delegate the Tennessee Council on Aging as the official agency to represent and set up the necessary organization for the White House Conference on Aging to be held in January, 1961. Out of this conference, we believe, many important decisions concerning the Problems of Aging will be made. We have in our treasury some \$38,000 to be used to do adequate research and to carry out positive programs in preparation for the White House Conference on Aging. We believe and have been told that thus far Tennessee is considerably ahead of most states in its organization and preparation. We hope to keep the leadership in the medical or allied professions, and accomplish those things for the aged that are consistent with the principles that you believe in.

In working with various government representatives on these problems we have had some remarkable experiences, and in the remaining few minutes I would like to share these experiences with you. In dealing with the politicians and statesmen I have been simply amazed at what I learned. I, personally, had been lulled into a sense of complacency in the last few years concerning the precarious state of American Medicine. But I am no longer ignorant of this and I hope that you, too, after this meeting today will become an ambassador for American Medicine.



In June of this year, a group of representatives from the Tennessee Council on Aging went to Washington to attend the Joint Council to improve the health care of the aged. It was there that I became aware of the great dilemma in which medicine now finds itself. One of the main luncheon speakers was Congressman Fogarty of Rhode Island, a highly intelligent and very respected member of congress who is the author of the bill that set up the White House Conference on Aging. As I interpreted his speech, he made three main points: (1) doctors have refused to reduce their fees to the aged, (2) pension and present social security are insufficient to take care of the hospital and medical expenses, and (3) the government will necessarily have to provide this care.

His speech, however, was mild compared to that of Governor Robert Meyner of New Jersey, a leading contender for Democratic Nominee for President. Let me read to you a few parts of his speech:

"I am also serving as chairman of the Special Committee on Aging of the Council of State Governments. Three years ago this month, speaking here in Washington, I cited the splendid report of the council. It shows that the ranks of the aged are growing, both relatively and absolutely; that the rate of increase of older people is twice that of the total population. They suffer from inequality of employment; inferior housing; separation, psychologically and physically, from family and friends; widowhood for more than half of the older women; loneliness; lack of social participation; shortage of trained personnel to deal with their problems; and inadequate medical, surgical, hospital and nursing home care.

"The council's report was forced to conclude that 'these problems, in their totality, represent the failure of our government and our society to design a program which permits our older citizens to contribute to our economy and to live healthful, useful and happy lives in accordance with accepted American standards.' This is an indictment which must lie heavily on the consciences of all of us. It cannot be swept under the rug nor, in my opinion, can it be left en-

tirely to private and voluntary agencies, no matter how energetic and well-intentioned.

"We are faced here not only with the health of 15 million people over 65, but of 35 million others between 45 and 64. Together they total about half of the eligible voting population of the country—and 50,000,000 people *will* be heard in a democratic society. We must consider that, in the absence of constructive action, this huge proportion of our people could be spurred into political action by our neglect. They might be tempted to vote into office men who make rash and extravagant promises of financial help. It has happened before. It could happen again. Politically, we cannot afford to deal lightly with 15 million persons who need immediate assurance, and 35 million who are nearing the status of senior citizens.

"Some groups have suggested increased use of private insurance. But it is idle to suppose that many of the people we are discussing can afford to maintain private health insurance even at reduced rates.

"A tidal wave of public and professional opinion is gathering to promote remedial action. Nor can there be any doubt that the problem is one that affects the national interest or is one that is properly a matter of national concern. Abraham Lincoln said: 'The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all, or cannot do so well for themselves, in their separate and individual capacities.'

"In the absence of a sound and reasonable alternative, I feel we must solve at least part of the problem by the American principle of insurance, as represented by the social security system."

Following a few more socialistic talks as was his, several of us felt that we should visit some of the congressmen and this is where we really learned of what is going on. Let me say that it seems that most congressmen, as well as anyone else, talks in a different vein when he is in the confines of his own office than he does elsewhere. Every public official, governor, senator, congressman, and councilman have all expressed one common opinion—that upper-most in



people's minds today is the problem of caring for aged and the high cost of medical care. Two of the congressmen gave us a tongue lashing criticism of all the faults of doctors regarding their excessive fees, their failures to make calls, and their abuse of insurance. I believe three out of five would vote today for the Forand Bill. I might tell you that our governor in all of his dealings with our committee has exhibited a forceful opposition to any maneuvers or legislation that lead toward governmental intrusion into medicine or any other private enterprise.

I will leave to Dr. Trabue and others to tell you of the proper ways to contact your various government representatives, but let me emphasize with great force the absolute importance that each of you and the doctors you represent contact your congressmen in an enlightened and pleasant way—not only your congressmen but also your patients.

Also, in a diplomatic way our congressmen must be made to express their views. We, as a medical profession, must concert our effort and elect only those men whom we know have the ideals that are necessary to preserve our American way of life. We must unite in our political effort as did the physicians of Florida when they so successfully elected Senator Smathers over incumbent Senator Pepper.

I feel strongly that we as doctors must accelerate our efforts toward positive activity in this field. Time is running out. We must not, like the ostrich, put our heads in the sand and ignore what is going on. Washington is buzzing, the Tennessee Legislature is acutely active and aware of this situation. Every doctor in Tennessee must be made aware of the crucial importance of this phase of activity. Each physician must feel a personal sense of responsibility. We must take more interest in whom we elect. We may have to fight fire with fire—we are no longer swimming against the stream, we are now swimming against the waterfall. It is going to be most difficult to effect even a compromise but it can be done if we as individuals do our part.

## Political Action or Socialism

TOM J. HITCH, President, Tennessee Farm Bureau Federation, Columbia, Tenn.

Political action or socialism is a very challenging subject and certainly a very timely one. Let us look at the word *politics*. What is it? Politics in this country is the science and practice of self-government. In our day, none of us has a more important business, and it is high time we took part. The penalties for failing to take part in politics is to be ruled by our inferiors. If this definition even approaches being right, then the word politics should be one of the best words in our vocabulary instead of one which we use with just a little slur in referring to politics.

If the other choice is socialism, then what is socialism? Someone has said that socialism is nothing more than communism in a hurry. What does it have as its purpose? Its purpose is to destroy the American competitive free enterprise system, and with this would go the best form of government the world has ever known. Measured in terms of what it has done for people, it has given us a high standard of living with more opportunities available to the individual, less interference by government, free choice and opportunity to worship according to the dictates of our own conscience.

To make a choice between these two should not be difficult, but day to day observation of many groups of people with which we come into contact, indicates the facts of this choice are not understood by many. We are all entirely too inclined to indifference; to hold up our end of politics requires work, while accepting socialism does not. We simply, by a lack of action, permit socialism to creep in. Without question, there is a sufficiently large majority of American people which, if aroused to its sense of responsibility, could protect our American free enterprise system from all the indoctrination of socialism. But this cannot be done so long as large segments of our population are willing to say that "My job is doing something else, and I will not have any part in politics."

I am of the opinion that American doctors are among the most guilty in permitting this to happen. They have the feeling that

they don't have time to devote to politics, and certainly a large number of them have the belief that politics is dirty and they want no part in it. There are others who might think that participating in politics will interfere and hurt their practice, and so on and on with other excuses, which are anything but excuses when measured against the importance that politics plays in our lives.

I realize that most of us become alarmed when we see something about to happen that will interfere with our own little corner of activities, such as the Forand Bill in medicine, but I am looking at politics that goes deeper than just fighting one important piece of socialistic legislation. I am talking about participating in politics at the most local meeting held by the party of your choice. It is here, many times, that some of our people are chosen to run for office, even though it may be some minor office. These same people may later end up as congressmen, senators, or even president, and just as incompetent as they were when selected at the small local party caucus.

We must understand that there is no unimportant job in government, so let's quit blaming the politicians and put the blame on the people who elect them to office. We should not blame a third-rate politician for not voting right, when uninformed people elected him. We must carry the blame back to the people who voted for him. Do not tell me that you do not have influence in your community. If you do not you certainly have no business practicing medicine. There is no one whom people trust more than their physician. Therefore, you can be influential.

Furthermore, there is another form of politics in which you can take part, this is to help finance the political campaigns of worthy candidates. Often there are those who make a small contribution of this kind and think this is their part in politics. But I do not accept that by doing this, it should be considered in any way as total participation; each of us should participate fully all the way. If we are to be successful in maintaining our form of government, of which we are proud as well as proud of its accomplishments, and in preventing socialism

from being substituted for it, we must recognize and must preach at every opportunity, the sacred privilege of being a citizen of the United States and hasten to add the great responsibility carried with it. While we are the most favored of any nation in the heritage that is ours and in our high standard of living, we must also share the great responsibility of protecting it and passing it on to others.

There are strong segments of our economy which are not afraid of politics. Jim Carey, a prominent figure in the AFL-CIO, said recently, "The answers to labor's problems are political." Whether you like it or not, there is no more influential figure living in our day than Walter Reuther. There are many others making careers of working at politics, and we can no longer rest with any assurance that the many advantages we are enjoying will not be taken away from us unless we assume our responsibility in the field of politics.

Let me enumerate a few principles that the proponents of socialism are advocating, so you may be alert to keep these before you in electing men to public office. These are truths which we should keep in mind:

1. You cannot multiply wealth by dividing it.
2. You cannot legislate the poor into freedom and wealth by legislating the wealthy out of it.
3. Governments cannot give to people what they do not first take away from the people.
4. That which one man receives without working for, another man must work for without receiving it.
5. The government cannot guarantee you a fair price or income without "all-out" controls, with their great limitations.
6. Uncle Sam must finally pay out money on the basis of equal shares, and to a socialistic-minded politician this is "one share—one vote."
7. The socialists and communists never get tired, we do.

I hope what I have had to say here will make some impression on you and will cause you to find your place in politics and work at it.

Thank you.

## Political Action in Tennessee

CHARLES C. TRABUE, M.D., Chairman,  
T.S.M.A. Legislative and Public Policy  
Committee, Nashville, Tenn.

American medicine is facing the greatest crisis it has ever faced.

The Murray-Wagner-Dingell Bill was a direct, frank, outright approach to the socialization of medicine with one piece of legislation. The Forand Bill is far more subtle and for that reason far more dangerous. This represents a piece-meal approach to the socialization of medicine and it is tied to a very strong emotional appeal. It will be difficult to persuade the public that the Forand Bill does represent a very important step toward socialization.

The Murray-Wagner-Dingell battle was largely fought by the AMA. You will remember that there was a special assessment on every member of the Association and with these funds, a large public relations firm was employed to lead and carry out the program. There was a considerable amount of criticism of this approach to the problem. It was too much like a large lobby paid for by the so-called rich doctors. The present crisis must be faced in a different way and the efforts must be made at the grass roots level rather than at the Washington level.

Those of you in this room represent the key to success or failure in Tennessee. We do not need to worry about other states. We need to be concerned about our nine congressmen—that is our job.

We must bring to bear upon each of these men every bit of influence at our command so they will be thoroughly convinced that the will of the people demands the defeat of the Forand Bill and that the welfare of the people depends on their vote in this issue.

This is a very simple problem, but that does not mean that the solution will be easily accomplished.

At the present time the Forand Bill is in committee. Only twenty-five men are on that committee. Every one of our Congressmen must be made to feel our influence as much as possible, for it is certainly likely that our Tennessee Congressmen may have

some influence on the Representatives who constitute the committee.

This bill can be called out of committee anytime after the convening of Congress on January 7th by a simple majority vote of Congress. If this should happen, each Congressman will have a vital vote on whether we are to have socialized medicine in the United States. We are informed from many sources that if this bill ever gets on the floor of Congress, our job will be much greater and we will have a much smaller chance of success. This is true because the Forand Bill has a tremendous emotional appeal and because there are enormous lobbies which are working for its passage.

How shall we go about trying to use our influence? What steps must each of us take?

The first step must be the education of the medical profession itself and then of the public. We hope that each one of you will consider it your duty to go back to your community, organize meetings of your medical profession and get across to the medical profession itself just what the Forand Bill is, what sort of threat it represents to the free enterprise system of medical practice, what our answers to the bill are, and what we must do to help prevent its passage. This must become an effort of the entire profession, our wives, our friends and our patients.

The next step which we think is important will represent a change in the attitude by many of us. A great many of us have maintained an attitude of aloofness from politics. We have felt that it is a dirty business and that many politicians are crooked. This attitude is actually not justified because the majority of our Congressmen are very honest, upright, conscientious men who are trying to carry out the will of their constituents. It is important that we develop an attitude of respect for them in order to accomplish a relationship of mutual respect.

We need to become personally acquainted with these men who are our representatives in Congress and who hold our future welfare in the palms of their hands. How shall we go about this? The first step is to call on your Congressman at his office, now, before he returns to Washington in January. Each of these men has an office in his own district



and that office is within easy reach of you. Make an appointment and go to his office alone, or with your wife, or with a group of other doctors or friends. Go with an attitude of friendliness and good will. Ask him for his opinion of the Forand Bill and if he is opposed to it, then thank him for this support. It is very important that the medical profession get across to these Congressmen the fact that we will support them because they have the same philosophy of government we have. Assure your Congressman you will not only vote for him but you will try to influence your friends to vote for him, and that you will expect to contribute to his campaign fund when the time comes. Ask him how you can help.

After leaving his office, it would be well to write a follow-up letter to tell him that you enjoyed the visit and tell him that you are going to count on him to stand firm on this matter of the Forand Bill and to reassure him again of your support.

Why not have your Congressman and his wife to dinner at your house, or ask him to play golf, go fishing, or hunting with you? Take him to your service club luncheon, see that he has a place on the program of your service club. Why not get your local medical society to have a party or dinner to get acquainted with him? Why does not each Auxiliary have a coffee, tea or luncheon for that Congressman—an opportunity to get acquainted and to let him make a few remarks to your group. After all, the vote of each Auxiliary member is as important as the vote of each doctor and Congressmen know better than to under-estimate the power of a woman.

And so we need to establish as many personal contacts as we can between ourselves and our Congressmen. These contacts should lead to a feeling of mutual understanding and trust. They should have a permanence for the future.

After establishing a good personal relationship with your Congressman, write him from time to time to make reports on what is going on in the community and to tell him again of your confidence in him and your support of him.

We hope that those of you who are here will consider it your personal challenge to

see to it that these activities get underway in your own county. If you do not do it, there is no one else to do it for you.

I am reminded of an old saying which most of us probably learned in grammar school, and which I think is quite appropriate in our present situation. "For want of a nail, a shoe was lost; for want of a shoe, the horse was lost; for want of the horse, the rider was lost; for want of the rider, the battle was lost; for want of the battle, the war was lost." It seems to me that each of us in this room should consider ourselves as important as that horseshoe nail was.

## DEATHS

**Dr. Harley W. Qualls**, 74, Memphis, died October 28th in Methodist Hospital. Dr. Qualls was a leading figure in state medical circles for forty years. He had been a member of the Tennessee Board of Medical Examiners since 1919 and served as Secretary of the Board.

**Dr. May C. Wharton**, 89, Pleasant Hill, died on November 19th. Her autobiography "Doctor Woman of the Cumberland" was published in 1953. Dr. Wharton was elected Tennessee's Outstanding General Practitioner of the Year in 1956.

**Dr. James Avery Leeper**, 54, Lenoir City, died October 26th at his home.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Knoxville Academy of Medicine

The Society held its November 10th meeting in the Academy Building. Guest speaker was Dr. Charles E. Flowers, Jr., who spoke on the subject "Carcinoma of the Cervix." Dr. Flowers discussed the epidemiologic aspects, practical points of diagnosis, treatment and follow-up of patients.

### Memphis-Shelby County Medical Society

The Society met in regular session on October 6th at the Institute of Pathology. The President, Dr. Ralph O. Rychener, presided at the meeting. The scientific program consisted of a symposium presented by members of the staff of Kennedy Veterans Administration Hospital. Dr. J. J. McCaughan, Jr. discussed "The Study of

One Hundred Consecutive By-pass Grafts of the Femoral Artery." The presentation was discussed by Dr. Charles B. Olim. Dr. Herman Bernhardt discussed "Cancer Cell Detection by the Millipore Technique" and his paper was discussed by Dr. Merlin L. Trumbull. Dr. Ralph F. Bowers discussed "Results of Treatment of Cancer of the Pancreas and the Lower Biliary Tract," with discussion by Dr. George R. Livermore, Jr.

### **Roane County Medical Society**

The November 24th meeting of the Society was held in the Conference Room at the Medical Division of ORINS. The meeting was preceded by a dinner at the Oak Ridge Hospital. The scientific program was presented by Dr. Stamfield Rogers, Research Director, UT Memorial Research Center and Hospital. His subject was "New Experimental Approaches to the Treatment of Cancer." Election of officers was held at this meeting.

The Society also cooperated with the District 8 division of the Tennessee Nurses Association in sponsoring a diabetes detection drive during the week of November 15-21.

### **Chattanooga-Hamilton County Medical Society**

The meeting consisting of a panel discussion on "The Impartial Medical Witness" was held in the Interstate Building and sponsored jointly by the Chattanooga-Hamilton County Medical Society and the Chattanooga Bar Association. Dr. Howard R. Craig, New York City, and Mr. Arthur Clephane, Philadelphia attorney, were the guest speakers. Mr. Clephane is counsel for the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society.

### **Nashville Academy of Medicine and Davidson County Medical Society**

The meeting was held on November 10th at the Mid-State Baptist Hospital, preceded by a dinner for the membership. In addition to nominating officers for the year 1960, national and state legislation, directly affecting doctors, was discussed. "Medicine's Role in Legislation," was presented by

Mr. Aubrey Gates, Director of the Field Service Division of the A.M.A. "Successful Steps in Conducting a State Legislative Program" was presented to the Academy members by Mr. Jack E. Ballentine, Executive Director of the Tennessee State Medical Association.

### **Consolidated Medical Assembly of West Tennessee**

The Society conducted its regular monthly meeting on November 3rd at the New Southern Hotel at Jackson. Approximately 60 doctors attended the meeting. Two papers by local doctors were presented,—one on the "Treatment of Burns," by Dr. W. M. Phillips, Jackson, the other on "Moles" by Dr. H. J. Alsobrook, Jackson. Dr. James L. Thomas and Dr. Chester K. Jones led the discussions.

### **Jefferson County Medical Society**

At a recent meeting, members of the Society heard Dr. Asa Barnes state that United Mine Workers hospitals have helped bring more well-trained physicians to Eastern Kentucky and Tennessee. Dr. Barnes is area medical administrator for the UMW Welfare and Retirement Fund. Dr. William Hambley of Pikeville also spoke to the Society.

## **NATIONAL NEWS**

### **The Month in Washington (From the AMA Washington Office)**

A special committee of consultants to the Federal government has recommended what was termed an urgent, essential program designed to maintain the present ratio of physicians in a sharply expanding population.

Dr. Leroy E. Burney, Surgeon General of the Public Health Service, gave his personal approval to the recommendations made by his 22-member Consultant Group on Medical Education after about a year's study. But he said he could not indicate yet "the extent to which they can be incorporated" in next year's proposals of the Department of Health, Education and Welfare.



The Consultant Group recommended expansion of existing medical schools and construction of 20 to 24 new ones with Federal help, federal scholarships for medical students, and greater efforts in the field by states, local communities, foundations, individuals, industry and voluntary agencies.

The Group said the present ratio of 133 doctors of medicine and 8 doctors of osteopathy per 100,000 population is "a minimum essential to protection of the health of the people of the United States."

To maintain this ratio the Group said, "the number of physicians graduated annually by schools of medicine and osteopathy must be increased from the present 7,400 a year to some 11,000 by 1975—an increase of 3,600 graduated.

"To meet the country's need for physicians for medical care, teaching, research and other essential purposes will require an immediate and strenuous program of action by the nation as a whole," the Group's 95-page report stated.

"This program must safeguard and improve the quality of medical education as well as bring about the needed substantial increase in the number of physicians."

The No. 1 recommendation of the Group was for the Federal government to appropriate over the next 10 years funds—estimated at about \$500 million "on a matching basis to meet construction needs for medical education," including necessary teaching hospitals.

"The Consultant Group is convinced that the Nation's physician supply will continue to lag behind the needs created by increasing population unless the Federal government makes an emergency financing contribution on a matching basis toward the construction of medical school facilities," the report stated.

The Group also said research grants to medical schools "should cover full indirect costs so that medical schools are properly reimbursed for the contribution of medical education to medical research."

These two recommendations were in line with American Medical Association positions on the matters.

The Group also urged "more generous public and private support for the basic op-

erations of medical schools." Such support, the report added, "must come from many sources, including state and local appropriations, endowments, gifts and grants, universities, and reimbursements for patient care."

Most of the consultants were physicians or educators. They included Dr. Julian Price of Florence, S. C., a member of the A.M.A. Board of Trustees and Dr. Edward L. Turner, Director of the A.M.A. Division of Scientific Activities.

Highlights of the Group's report included:

—To maintain the present physician-population ratio, the expected 1975 population of 235 million will require a total of 330,000 doctors of medicine and osteopathy.

—There also must be 12,000 entering students in 1971, as against about 7,600 a year now.

—"In a very real sense, the needs for physicians cannot be met by numbers alone. They will be met only as an expanded program maintains and enhances the quality of medical education."

—The entry of more physicians into research, industrial medicine and similar activities "has made possible much of the progress of modern medicine." But it also has resulted in "relatively fewer physicians devoting full time to patient care."

## MEDICAL NEWS IN TENNESSEE

### T SMA Dues Policy

According to Chapter IX, Section 1 of the By-Laws of the Tennessee State Medical Association, *new members* who are reported between July 1 and December 31 of any year are required to pay only one-half of the annual dues. *This applies only to new members joining the Association for the first time, but does not include any member who has previously been a member of the Association.* The same policy is followed in the collection of A.M.A. dues, which means that a new member joining TSMA or the American Medical Association after July 1 and prior to December 31 of a given year, may do so at one-half of the annual dues.



### **Academy of General Practice Chapter Meets**

The Andrew Jackson Chapter of the Tennessee Academy of General Practice held a dinner meeting in Springfield on October 15th at Wingo's Grill. Twenty-five doctors accompanied by their wives, attended the meeting. Following dinner, those attending adjourned to Jesse Jones Hospital to hear a two-hour panel discussion on "Common Skin Disorders Encountered in General Practice." The panel discussion group consisted of Dr. R. N. Buchanan, Jr. and Dr. Frank Witherspoon, both of Nashville. Dr. Robert H. Elder is President of the Chapter.

### **Rise in Medical Costs Deplored**

The climbing cost of health insurance is pushing the nation closer and closer to socialized medicine according to L. G. Schulze, speaking before the Memphis Group Underwriters Association. "Health Insurance is being priced out of the market," Mr. Schulze stated. He is chairman of the Tennessee Health Insurance Council. He called for closer cooperation between hospitals, doctors and insurance companies "to hold the line" against mounting rates.

### **Clinical Orthopedic Society**

Medical problems associated with injuries, diseases and tumors of the bones and joints were discussed at a National meeting of the Clinical Orthopedic Society in Memphis on October 23-24. Orthopedic surgeons from all over the country attended the two-day scientific program. Membership in the specialty group is limited to 225.

### **Memphis Thoracic Society**

The Memphis Thoracic Society has elected officers for 1960. Dr. Samuel Phillips has been named president succeeding Dr. Francis H. Cole. Dr. Robert P. McBurney was named vice president and Dr. William G. White was named secretary-treasurer. Physicians interested in the medical-surgical aspects of thoracic disorders are welcome to attend any subsequent meetings of the society.

### **University of Tennessee College of Medicine**

Physicians will have the opportunity to

combine study with a Caribbean cruise next January. The College of Medicine will conduct a postgraduate course during the cruise made possible through the cooperation of the Tennessee Academy of General Practice. The cruise will cover eight days and will depart from New Orleans on January 15th. Twenty hours of postgraduate credit is offered by the AAGP to those making the voyage. Conducting the course aboard the ship will be Dr. M. K. Callison, dean of the UT's College of Medicine; Dr. Harwell Wilson, chief of the division of surgery; Dr. I. Frank Tullis, chief of the division of medicine; Dr. L. W. Diggs, head of the department of medical laboratories; Dr. James G. Hughes, professor of pediatrics, and Dr. R. H. Kampmeier, Nashville, professor of medicine at Vanderbilt University School of Medicine.

Further information may be obtained from the Postgraduate Department of UT at 62 South Dunlap Street.

★

Dr. Roland H. Alden, chief of the division of anatomy since 1949, has been named to the newly created position of associate dean of the Graduate School for Medical Sciences. He will begin his new duties on January 1. Dr. T. P. Nash will continue as dean of the School of Biological Sciences.

★

UT researchers report that they may have found a quicker method of diagnosing tuberculosis. Dr. Douglas Sprunt said the use of "millipore" might allow the disease to be diagnosed in five days compared to three weeks with present techniques.

★

Dr. U. S. von Euler, director of the Physiology Institute of the Karolinska Institute, Stockholm, Sweden, addressed the student body of the UT College of Medicine. Dr. von Euler is renowned for present-day knowledge of adrenalin and non-adrenalin in the human body.

★

A symposium on the use of steroids or cortisone type drugs, in medicine was sponsored by the University on November 13-14. Guest faculty members were Dr. Roger Black, clinical investigator in the arthritis and metabolic disease unit, Bethesda, Md.;

Dr. William Clark, editor of the American Rheumatism Association Journal and medical director of the National Foundation; Dr. John Gross, instructor in pediatrics, the University of Chicago; and Dr. Dieter Koch-weser, associate professor of medicine, Western Reserve University.

★

## PERSONAL NEWS

Elected as officers of the East Tennessee Radiological Society at a meeting at Gatlinburg, on September 12th were: **Dr. Eugene Abercrombie**, Knoxville, president; **Dr. James R. Range**, Johnson City, vice president; **Dr. John M. Higgason**, Chattanooga, president elect; and **Dr. J. Marsh Frere, Jr.**, Knoxville, secretary-treasurer.

**Drs. F. C. Womaek, Jr.** and **B. B. Bellomy**, Nashville, with **Drs. D. K. Gotwald** and **T. C. Delvaux, Jr.**, Nashville, announce the opening of a Tissue and Clinical Pathology Service Laboratory to be known as "Pathologists' Laboratory." The laboratory will be located in the new Mid-state Medical Center Building, 2000 Church Street, Nashville.

**Dr. Addison B. Scoville, Jr.**, Nashville, has been appointed governor for the State of Tennessee for the American Diabetes Association.

**Dr. Luther Fay Prichard**, Only, was recently honored by the University of Tennessee for 50 years in the practice of medicine.

**Drs. J. Wesley Atwood** and **James R. Quarles**, announce the opening of their office for the practice of medicine and surgery at Springfield. They plan to begin January 1, 1960.

**Dr. Jack Chesney**, Knoxville, has been chosen president-elect of the Knoxville Academy of Medicine. He succeeds **Dr. Charles Smeltzer**, the 1959 president-elect who will serve as president during the year 1960. **Dr. Richard Sexton**, Knoxville, was named vice-president and **Dr. Ralph Monger**, Knoxville, was re-elected secretary-treasurer.

**Dr. Augustus McCravey**, Chattanooga, recently spoke to the Cleveland Womans Club. His topic was "Mental Health."

**Dr. R. Beverley Ray**, Memphis, has been named president-elect of the medical staff at Baptist Hospital. He succeeds **Dr. Francis Murphy** who takes office as president on January 1. Also elected were **Dr. William P. Maury**, vice president; **Dr. George Livermore, Jr.**, secretary; and **Dr. W. E. French** and **Dr. M. L. Trumbull** as members-at-large of the Executive Committee.

**Dr. Robert F. Ackerman**, president of the Memphis Heart Association, recently addressed the Memphis Lay Diabetics Association. He discussed "Hardening of the Arteries."

**Dr. Chalmer Chastain**, Cleveland, has been

elected advisory director of the Greater Tennessee Corporation.

Two Memphis doctors have been elected fellows of the American Academy of Pediatrics. They are: **Dr. Emmett D. Bell, Jr.** and **Dr. Eugene U. Epstein**.

**Dr. R. H. Elder**, Cedar Hill, has been elected president of the staff of the Jesse Jones Hospital in Springfield; **Dr. John M. Jackson**, Springfield, was elected vice president.

**Dr. Carl E. Adams**, Murfreesboro, has been re-elected as a provisional member of the Board of Directors of the Tennessee Division of the American Cancer Society.

**Drs. Franklin B. Bogart** and **George K. Henshall, Jr.**, Chattanooga, have announced the association of **Dr. C. Windom Kimsey**, in the practice of radiology.

**Dr. J. W. Hillman**, Nashville, recently spoke before the meeting of the American Physical Therapy Association's Middle Tennessee District. "The Responsibility of Physical Therapy in the Community" was his topic. The meeting was held at Vanderbilt University Hospital.

**Dr. John P. Lindsay**, Nashville, has been appointed to the advisory committee of the Cancer Control Program of the Public Health Service.

**Dr. Clyde R. Kirk**, Chattanooga, was elected to the American College of Surgeons at a recent meeting in Atlanta.

**Dr. Lee Cayee**, Nashville, is the new president of the David Lipscomb College Alumni Association.

Attending the recent meeting of the Clinical Orthopedic Society in Memphis were the following Memphis physicians: **Drs. J. S. Speed**, **A. H. Myers, Sr.**, **Moore Moore, Jr.**, **Thomas L. Waring**, **R. Beverley Ray**, **Alvin J. Ingram**, **George B. Higley, Sr.**, **Marcus J. Stewart**, **Harold B. Boyd** and **William T. Howard**.

**Dr. Howell H. Sherrod**, Johnson City, was the principal speaker at the 11th annual convention of the Tennessee Licensed Practical Nurses Association which met at Kingsport.

**Dr. Carl Henry**, Kingston, has been elected to the Board of Directors of the Tennessee Division of the American Cancer Society.

**Dr. Ben J. Alper**, Nashville, has been elected president of the Middle Tennessee Chapter of the National Arthritis and Rheumatism Foundation.

**Dr. E. W. Cocke, Jr.**, Memphis, has been elected a director of the Tennessee Division of the American Cancer Society.

**Dr. Blanche Somerville**, Jackson, has joined the Children's Clinic in Jackson.

**Dr. Karl B. Rhea**, Somerville, has joined the Morris Clinic in Somerville.

**Dr. James M. Hays**, Chattanooga, announces his association with **Dr. Preston McDow** in the practice of general medicine.

**Dr. James B. Ely**, Knoxville, has been installed as president of the Knox County Unit of the American Cancer Society.

Two Nashville physicians recently appeared on the program of the meeting of the American Heart Association in Philadelphia. They were **Drs. Lloyd Ramsey** and **George Meneely**.

Attending the meeting of the American Heart Association recently were: **Drs. Walter Hoffman, I. Frank Tullis, J. Leo Wright, Charles V. Dowling** and **Robert F. Ackerman**, all of Memphis. Chattanooga physicians attending the meeting were: **Drs. James B. Cole, David P. McCallie, Philip Livingston**, and **Maurice Rawlings**.

**Dr. William D. Crawley**, Chattanooga, announces the opening of his office for the practice of obstetrics and gynecology.

Two Chattanooga surgeons, **Drs. J. E. Johnson** and **Edward E. Reisman, Jr.** have been admitted as Fellows to the International College of Surgeons, at its recent 24th annual meeting.

**Dr. Benjamin F. Byrd, Jr.**, Nashville, recently addressed the Knox County Unit of the American Cancer Society.

**Dr. J. Paul Baird**, Dyersburg, has been named chief of staff of Parkview hospital at Dyersburg. He succeeds **Dr. J. G. Price** of Dyersburg. **Dr. Patrick Widdis**, Newbern, was named assistant chief of staff, and **Dr. W. I. Thornton** was named secretary.

**Dr. John L. Armstrong**, Somerville, has been named president elect of the Tennessee Academy of General Practice. He will succeed to the presidency in 1960.

## ANNOUNCEMENTS

### International Medical Assembly of Southwest Texas

The 24th Annual Session of the International Medical Assembly of Southwest Texas will be held in San Antonio, Texas, January 25-27, 1960 at the Hilton Hotel. Seventeen nationally known speakers will present the program.

For further information write to **Dr. A. O. Severance**, President, 202 West French Place, San Antonio 12, Texas.

### American College of Surgeons— Sectional Meeting

Surgeons and other medical personnel are in-

vited to attend the three day Sectional Meeting of the American College of Surgeons in Louisville, Kentucky, January 21 through 23, 1960. Headquarters will be at the Brown Hotel. This is the first college meeting in Louisville since 1950.

In addition to the general surgery program which will be of particular interest to gynecologists, thoracic surgeons, vascular surgeons and urologists, **Dr. D. Dwight Townes** is in charge of arrangements for a special two-day program on ophthalmic surgery. A special two-day program for otolaryngologists and a Workshop for Medical Directors of Approved Cancer Programs will be held at the Louisville General Hospital.

### Mid-South Postgraduate Medical Assembly

The Seventy-first annual meeting will be held Feb. 9-12, 1960, at the Peabody Hotel, Memphis. Many guest speakers will appear on the program. The American Academy of General Practice approved the 1958 and 1959 Assemblies for Category I Credit. This is being applied for this year also.

### Conference on Cerebral Palsy

This conference sponsored by the University of Tennessee and United Cerebral Palsy will be held in Claxton Hall on January 13 and 14. It is for professional workers concerned with cerebral palsy, as guidance counselors, nurses and doctors, psychologists, social workers, special education teachers and therapists, and vocational rehabilitation counselors. For information address **Dr. Florence V. Essery**, Department of Special Education, University of Tennessee, Knoxville.

### East Tennessee Heart Association

"Progress Reports in Cardiovascular Diseases" will be presented at the Andrew Johnson Hotel, Knoxville, on Thursday, January 21. Guest speakers will be **Thomas W. Mattingly, M.D.**, of the Walter Reed Hospital, Washington; **Victor A. McKusick, M.D.**, The Johns Hopkins Hospital, Baltimore; **Andrew G. Morrow, M.D.**, National Heart Institute, Bethesda; and **Alexander S. Nadas, M.D.**, The Children's Hospital, Boston.



# 1959 MEMBERS OF TENNESSEE STATE MEDICAL ASSOCIATION

The list of members of the Tennessee State Medical Association is published in compliance with a provision of the Constitution and By-Laws. The data are accurate as of December 10, 1959. They are arranged in the following order:

List of active members.

Counties arranged alphabetically.

**ANDERSON COUNTY**  
*Clinton*  
A. W. Bishop  
P. M. Dings  
(Mbr. Roane Co. Soc.)  
J. S. Hall  
Henry Hedden, Jr.  
John J. Smith  
*Lake City*  
J. M. Cox  
R. B. Scott  
*Norris*  
S. G. McNeeley  
*Oliver Springs*  
F. O. Stone  
S. J. Van Hook  
(Mbr. Roane Co. Soc.)  
**BEDFORD COUNTY**  
*Shelbyville*  
W. L. Chambers  
A. L. Cooper  
John S. Denberry  
Alfred Farrar  
Taylor Farrar  
Henry Feldhaus, Jr.  
Wallace Frierson  
Grace Moulder  
Carl Rogers  
Sara Womack  
**BENTON COUNTY**  
*Camden*  
Wm. H. Blackburn  
J. S. Butterworth  
A. I. Hicks  
R. L. Horton  
**BLED SOE COUNTY**  
*Pikeville*  
Thomas G. Cranwell  
(Mbr. Hamilton Co.)  
**BLOUNT COUNTY**  
*Alcoa*  
Oliver K. Agee  
Joe S. Henderson  
*Maryville*  
J. H. Bowen  
K. A. Bryant  
Henry A. Callaway  
Lea Callaway  
J. W. Christollerson  
Mary D. Gagan  
W. C. Crowder  
Lynn F. Curtis  
W. N. Dawson  
R. H. Haralson  
J. S. Henry  
Cecil Howard  
H. L. Isbell  
Edward Kelman  
E. P. Kintner  
Beulah Kittrell  
Samuel S. Lambeth  
Ray Laughmiller  
Julian C. Lentz  
C. B. Lequire  
Robert F. Leyen  
I. S. Lovingood  
Norman A. McKinnon  
J. F. Manning  
Robert Mynatt  
J. S. Phelan  
Tom Proctor  
James N. Proffitt  
B. P. Ramsey  
O. L. Simpson, Jr.  
Trent Vandergriff  
\*In Service

Lowell E. Vinsant  
John Yarbrough  
*Townsend*  
Barbara Donaldson  
**BRADLEY COUNTY**  
*Calhoun*  
I. M. Weir  
*Cleveland*  
D. N. Arnold  
Wesley A. Barton  
Marvin Batchelor  
Chalmers Chastain  
Jack R. Free  
Wm. A. Garrett  
C. S. Heron  
Ivan C. Humphries, Jr.  
Frank Jones  
C. H. Kimball  
J. C. Lowe  
Joseph McCoy  
Hass Mitchell  
Allan W. Peipelitz  
E. Harris Pierce  
Wm. L. Pholitt  
John A. Rogness  
C. T. Speck, Jr.  
Wm. R. Smith  
W. C. Stanbery  
S. J. Sullivan  
Claid H. Taylor  
Madison S. Trewhitt  
Gilbert A. Varnell  
**CAMPBELL COUNTY**  
*Caryville*  
Chas. Rogers  
*Clairfield*  
J. L. Walker  
*Jellico*  
Charles A. Prater  
Ned C. Watts  
*La Follette*  
Jas. D. Crutchfield  
M. L. Davis  
P. T. Howard  
P. J. O'Brien  
J. W. Presley  
John C. Pryse  
R. C. Pryse  
James W. Riggs  
L. J. Seargeant  
Bugin Wood  
**CANNON COUNTY**  
*Woodbury*  
William A. Bryant  
(Mbr. Rutherford Co.)  
Amos L. Collee  
(Mbr. Rutherford Co.)  
Russell E. Meyers  
(Mbr. Rutherford Co.)  
**CARROLL COUNTY**  
*Bruceton*  
R. T. Keeton  
*Huntingdon*  
R. A. Douglass  
Herbert G. Giddens  
R. B. Wilson  
*McKenzie*  
F. E. Edwards, Jr.  
J. T. Holmes  
*Trezevant*  
James H. Robertson  
**CARTER COUNTY**  
*Elizabethton*  
Robert Allen

Hoyle E. Bowman  
Richard Bucher  
E. L. Caudill, Sr.  
E. L. Caudill, Jr.  
W. G. Frost  
Rovee Holsay  
John A. Knapp  
Floyd May  
Joyce May  
E. T. Pearson  
Dillard Sholes, Jr.  
D. J. Slagle  
James M. Willett  
**CHEATHAM COUNTY**  
*Ashtand City*  
J. P. Glover, Jr.  
(Mbr. Davidson Co.)  
**CHESTER COUNTY**  
*Henderson*  
O. M. McCallum  
R. L. Wilson  
**CLAIBORNE COUNTY**  
*New Tazewell*  
H. C. Evans  
(Mbr. Knox Co.)  
George L. Rea  
(Mbr. Knox Co.)  
**COCKE COUNTY**  
*Newport*  
W. E. McGaha  
Drew A. Mims  
Wm. B. Robinson  
Glen C. Shults  
Fred M. Valentine  
Fred M. Valentine, Jr.  
**COFFEE COUNTY**  
*Manchester*  
Clarence H. Farrar  
Howard A. Farrar  
H. H. Winters  
Coulter S. Young  
*Tullahoma*  
R. L. Brickell  
Randolph A. Cate  
P. J. Lippin  
(Mbr. Franklin Co.)  
B. E. Galbraith  
Edwin E. Gray, Jr.  
Charles B. Harvey  
J. M. King  
C. G. Snoddy  
Chas. Harry Webb  
**CROCKETT COUNTY**  
*Alamo*  
E. O. Prather, Jr.  
*Bells*  
E. Farrow  
F. P. Hess  
Charles N. Hickman  
R. W. Mayfield  
Wm. R. Sullivan  
*Maury City*  
Joseph E. Crupie  
**CUMBERLAND COUNTY**  
*Crossville*  
James T. Callis  
R. G. Cravens  
Paul A. Erwin, Jr.  
Wm. E. Evans  
Donatiah Ivey  
H. F. Lawson  
Robert M. Metcalfe  
Stuart P. Seaton  
M. M. Young

*Pleasant Hill*  
Margaret K. Stewart  
**DAVIDSON COUNTY**  
*Donelson*  
E. E. Anderson  
Luther A. Beazley  
Robert B. Gaston  
C. N. Gessler  
Chas. H. Huddleston  
Joseph E. Hurt  
Joe M. Miller  
Luther E. Smith  
Wm. B. Wadlington  
*Goodlettsville*  
Roy R. Bowes  
W. R. C. Stewart  
*Madison*  
William J. Card  
Sam W. Carney  
Frederick B. Cothran  
Robt. L. Pettus, Jr.  
Joe E. Sutherland  
Harry Witzum  
*Madison College*  
Hillis F. Evans  
Julian C. Gant  
Gilbert H. Johnson  
Cyrus E. Kendall  
Naomi K. Pitman  
Jean M. Slate  
*Nashville*  
Crawford W. Adams  
Jesse E. Adams  
R. W. Adams, Jr.  
J. W. Alford, Jr.  
Joseph H. Allen  
Wm. E. Allison  
J. Clyde Alley, Jr.  
Ben J. Alper  
W. L. Alsobrook  
Arthur R. Anderson  
Edwin B. Anderson  
H. R. Anderson  
J. Sumpter Anderson, Jr.  
Joe D. Anderson  
Robt. S. Anderson  
J. J. Ashby  
I. Mansfield Bailey  
(Mbr. Wilson Co.)  
Joseph I. Baker  
Sidney W. Ballard  
Preston H. Bandy  
Edwin H. Barksdale  
Randolph Batson  
David S. Bayer  
Bruce B. Bellomy  
Eric Bell, Jr.  
Lynch D. Bennett  
Edmund W. Benz  
Stanley Bernard  
John H. Beveridge  
Otto Billig  
F. T. Billings, Jr.  
Geo. T. Binkley, Jr.  
Russell Birmingham  
Eugene L. Bishop, Jr.  
Lindsay K. Bishop  
Frank M. Blackwell  
James B. Boddie, Jr.  
Geo. W. Bounds  
Anna M. Bowie  
John M. Boylin  
H. B. Brackin  
H. B. Brackin, Jr.  
Cloyce F. Bradley  
G. Hearn Bradley  
David V. Bradley  
T. F. Bridges  
Dorothy L. Brown  
M. F. Brown  
(Mbr. Lincoln Co.)  
Catherine B. Brummett  
Lonis Bryan

J. Thomas Bryan  
John C. Burch  
Joseph G. Burd  
R. N. Buchanan, Jr.  
Roger B. Burrus  
B. F. Byrd, Jr.  
James J. Callaway  
Richard O. Cannon  
Joe M. Capps  
George K. Carpenter  
Oscar W. Carver  
Norman M. Cassell  
W. R. Cate  
W. R. Cate, Jr.  
John S. Cayce  
Lee F. Cayce  
Robert L. Chalfant  
Amos Christie  
Jeannine Classen  
Everett M. Clayton, Jr.  
Cully A. Cobb, Jr.  
John H. Coles, III  
Harold A. Collins  
W. J. Core  
Orrie A. Couch, Jr.  
Sam C. Cowan, Jr.  
Frederic E. Cowden  
Geo. Boyd Crafton  
H. James Crecraft  
R. R. Crowe  
E. Perry Grump  
W. Andrew Dale  
Rollin A. Daniel, Jr.  
Wm. J. Darby  
Philip V. Daugherty  
Milton D. Davis  
T. W. Davis  
Thomas C. Delvaux, Jr.  
Wm. A. Demonbreun  
Walter L. Dively  
Earl D. Dorris  
Robert T. Doster  
Beverly Douglas  
H. L. Douglass  
L. Rowe Driver  
Ray L. Dubuison  
Price H. Duff  
R. S. Duke  
George Duncan  
Herbert Duncan  
Phillip C. Elliott  
James W. Ellis  
Irwin B. Eskind  
Harry M. Estes  
E. Wm. Ewers  
Don L. Eyler  
John L. Farringer, Jr.  
Wm. H. Faulkner  
R. O. Fessey  
Robert M. Finks  
John M. Flexner  
Robert M. Foote  
Howard R. Foreman  
Garth E. Fort  
S. Benjamin Fowler  
Richard France  
Herbert C. Francis  
Horace M. Frazier  
John W. Frazier, Jr.  
Thomas F. Frist  
James L. Fuqua  
Robert K. Galloway  
Chas. K. Gardner  
James C. Gardner  
Sam Y. Garrett  
R. S. Gass  
Hamilton V. Gayden  
Horace C. Gayden  
John R. Glover  
Fred Goldner  
James E. Goldsberry  
Robt. A. Goodwin  
David K. Gotwald  
Geo. T. Graves, Jr.  
Herschel A. Graves, Jr.  
Clifton E. Greer, Jr.  
John W. Griffith, Jr.  
Tbos. W. Grizzard  
Laurence A. Grossman  
Milton Grossman  
Wm. E. Gupton, Jr.  
Arnold Haber, Jr.  
Geo. B. Hagan  
David W. Hailey  
Chas. E. Haines, Jr.  
Thos. B. Halton  
Chas. M. Hamilton  
J. R. Hamilton  
W. M. Hamilton  
Roy G. Hammonds  
Anderson P. Harris  
Jackson Harris  
Robt. C. Hattmann  
A. B. Harwell  
James T. Hayes  
John H. L. Heintzelman  
James B. Helme  
J. L. Herrington, Jr.  
John G. Herzfeld  
B. K. Hibbett, III  
J. B. Hibbitts, Jr.  
William Higginson  
Elmore Hill, D.M.D.  
I. R. Hillard  
John W. Hillman  
R. H. Hirsch  
(Mbr. Robertson Co.)  
J. Harville Hite  
Charlie Joe Hobdy  
Geo. W. Holcomb, Jr.  
A. N. Hollabaugh, Jr.  
Chas. F. Hollabaugh  
Wm. K. Howard  
W. W. Hubbard  
James M. Hudgins  
Granville W. Hudson  
Warren J. Hunzicker  
Vernon Hutton, Jr.  
M. D. Ingram, Jr.  
Albert P. Isenhour, Jr.  
J. McK. Ivie  
A. H. Jackson  
W. F. B. James  
John A. Jarrell, Jr.  
D. J. Johns  
Alfonso P. Johnson  
Hollis E. Johnson  
Ira T. Johnson, Jr.  
Edmund P. Jones  
T. M. Jordan  
R. H. Kampmeier  
Herman J. Kaplan  
A. E. Keller  
J. Allen Kennedy  
Wm. G. Kennon, Jr.  
Carl T. Kirchmaier  
J. A. Kirtley, Jr.  
O. Morse Kochitzky  
Leonard J. Koenig  
Roland D. Lamb  
Ralph M. Larsen  
Horace T. Lavelly, Jr.  
A. R. Lawson  
G. Allen Lawrence  
Jas. D. Lester  
James P. Lester  
Malcolm R. Lewis  
Milton S. Lewis  
Grant W. Liddle  
Richard C. Light  
John P. Lindsay  
Joanne Linn  
Robert J. Linn  
A. B. Lipscomb  
Jackson P. Lowe  
S. L. Lowenstein  
Frank H. Luton  
Philip L. Lyle  
Robt. H. Magruder  
Guy Milford Maness  
W. R. Manlove, Jr.  
Edw. H. Martin, D.D.S.  
Travis H. Martin

Towns in each county arranged alphabetically and the members in each town arranged alphabetically.

List of members residing outside the state arranged alphabetically.

List of veteran members.

List of members who have died in the year 1959.

Ralph W. Massie  
Jas. Andrew Mayer  
Ben R. Mayes  
Curtis P. McCammon  
G. S. McClellan  
Robt. E. McClellan  
C. C. McClure  
C. C. McClure, Jr.  
Robt. L. McCracken  
Wm. J. McGanity  
Charles W. MacMillan  
M. Chas. McMurray  
Barton McSwain  
Wm. F. Meacham  
George Meneceley  
Arnold M. Meinosky  
Andrew H. Miller  
Cleo M. Miller  
James B. Miller  
Lloyd C. Miller  
James B. Millis  
Harry T. Moore, Jr.  
Theodore Morford  
Hugh J. Morgan  
N. B. Morris  
P. G. Morrissey, Jr.  
M. K. Moulder  
Oscar G. Nelson  
Dewey Nemece  
Tom E. Nesbitt  
E. V. Newman  
Oscar F. Noel  
O. A. Oliver, D.D.S.  
John R. Olson  
Wm. F. Orr, Jr.  
Guy Owens  
James C. Overall  
Fred W. T. Overton  
Fred D. Ownby  
Homer M. Pace, Jr.  
Roy Wm. Parker  
Thomas I. Parrish  
Bernard J. Pass  
John W. Patterson  
R. C. Patterson, Jr.  
C. Gordon Peelman, Jr.  
Edna S. Pennington  
Jefferson C. Pennington, Jr.  
Thos. Guy Pennington  
George L. Perler  
M. A. Petrone  
David Pickens, Jr.  
Samuel B. Prevost  
Robert W. Quinn  
James Seay Read  
E. M. Regen  
John R. Rice  
S. C. Reichman  
Greer Ricketson  
Douglas H. Riddell  
Elkin L. Rippey  
S. S. Riven  
Ben H. Robbins  
Joseph D. Robinson  
Miller Robinson  
Dan C. Rochin  
David E. Rogers  
Marvin Rosenblum  
Sol Rosenblum  
Louis Rosenfeld  
P. M. Ross  
Fred Rowe, Jr.  
Robert M. Roy  
Robert N. Sadler  
Dan S. Sanders, Jr.  
Houston Sarvatt  
John L. Sawyers  
J. H. Sayers, Jr.  
C. David Scheibert  
Lawrence G. Schull  
Herbert J. Schulman  
H. Wm. Scott, Jr.  
A. B. Scoville, Jr.  
C. Gordon Sell  
D. C. Seward  
Robert S. Shacklett  
John L. Shapiro  
Harry S. Shelley  
Wm. F. Sheridan, Jr.  
Abram C. Shmerling  
N. S. Shofner  
Harrison J. Shull  
Ammie T. Sikes  
T. E. Simpkins  
Chas. B. Smith  
Daugh W. Smith

\*In Service

Henry C. Smith  
Marion E. Smith  
Bertram E. Sproffkin  
Daphne Spouse  
Gray E. B. Stahlman  
Sam Stephenson, Jr.  
Lee Wm. Stewart  
Frank W. Stevens  
Hugh L. C. Stevens  
Joe M. Strayhorn  
W. D. Strayhorn  
Wm. D. Sumpter, Jr.  
Arthur J. Sutherland  
Richard P. Taber  
G. J. Tauleton, Jr.  
John M. Tamm  
Ed L. Tapley  
Pauline Tenzel  
Robert T. Terry  
Andrew B. Thach, Jr.  
C. S. Thomas  
John B. Thomason  
J. N. Thomason  
Chas. B. Thorne  
W. O. Tirrill, Jr.  
Kirkland W. Todd, Jr.  
C. C. Trabue, IV  
Leslie E. Traughber, Jr.  
C. B. Tucker  
Harlin G. Tucker  
John M. Tudor  
J. J. Vaughn, D.D.S.  
Wm. O. Vaughan  
Ethel Walker  
Matthew Walker  
Peter B. Wallace  
James W. Ward  
Russell D. Ward  
Thomas F. Warder  
Paul L. Warner  
R. J. Warner  
Thomas S. Weaver  
B. H. Webster  
Albert Weinstein  
Bernard Weinstein  
A. Lawrence White  
Frank E. Whitacre  
Joe T. Whitfield  
Earl E. Wilkinson  
Edwin L. Williams  
W. Carter Williams  
(Mbr. Smith Co.)  
Frank G. Witherspoon  
Frank C. Womack, Jr.  
C. C. Woodcock  
M. C. Woodfin  
T. Volney Woodring  
Calvin Woodruff  
John R. Woods  
John L. Wyatt  
Kate Savage Zerfoss  
Thomas B. Zerfoss  
Thos. B. Zerfoss, Jr.

#### Old Hickory

T. D. Dailey  
E. P. Johnson  
James K. Lawrence  
R. P. Miller  
E. B. Rhea  
W. W. Wilson

#### DECATUR COUNTY

##### Parsons

H. L. Conger

#### DEKALB COUNTY

##### Alexandria

Odell Mason  
(Mbr. Smith Co.)

#### DICKSON COUNTY

##### Charlotte

James C. Elliott

##### Dickson

J. T. Allen  
W. A. Bell, Jr.  
Mary Baxter Cook  
W. A. Crosby  
J. T. Jackson  
Lawrence C. Jackson  
W. M. Jackson  
E. W. McPherson

#### DYER COUNTY

##### Dyersburg

W. E. Anderson  
J. Paul Baird  
Thos. V. Banks  
James W. Bonds  
Thomas W. Johnson  
Robert T. Kerr  
O. B. Landrum  
J. C. Moore  
J. G. Price  
R. David Taylor  
W. I. Thoinnton, Jr.  
Lydia V. Watson

##### Newbern

J. T. Fuller  
Wm. L. Phillips  
P. B. Widdis

#### FAYETTE COUNTY

##### Somerville

John L. Armstrong  
Frank S. McKnight  
John W. Morris  
J. E. Outlan  
Wm. F. Outlan  
Lee Rush, Jr.

#### FENTRESS COUNTY

##### Jamestown

B. Fred Allred  
Guy C. Pinckley  
Jack C. Smith

#### FRANKLIN COUNTY

##### Cowan

Chas. D. Couser

##### Huntland

L. J. Stubblefield  
(Mbr. Lincoln Co.)

##### Sewanee

Ruth A. Cameron  
Charles B. Keppeler  
E. W. Kirby-Smith  
H. T. Kirby-Smith

##### Winchester

Jo C. Anderton  
Reynolds Fite  
Gerald E. Johnson  
George L. Smith  
James Van Blaricum

#### GIBSON COUNTY

##### Dyer

F. Douglass  
John W. Ellis

##### Humboldt

H. G. Barker  
Chas. W. Davis  
A. H. Fick  
J. W. Oursler  
Jas. D. Rozzell  
George E. Spangler

##### Medina

Robert Morris

##### Milan

H. P. Clemmer  
James O. Fields  
R. F. Hughes  
F. L. Keil  
Philip G. Williams

##### Rutherford

W. F. Bell

##### Trenton

Edw. C. Barker  
James W. Hall

#### GILES COUNTY

##### Ardmore

C. B. Marshall  
(Mbr. Lincoln Co.)

##### Prospect

L. A. Edmondson

#### Pulaski

Robert B. Agee  
J. H. Hite, Jr.  
W. J. Johnson  
Roy W. Money  
W. K. Owen  
J. U. Speer

#### GRAINGER COUNTY

##### Rutledge

L. C. Bryan  
(Mbr. Knox Co.)  
L. J. Hill  
(Mbr. Hamblen Co.)

##### Washburn

Robt. J. Phlegar  
(Mbr. Knox Co.)

#### GREENE COUNTY

##### Greeneville

V. R. Bottomley  
Robert G. Brown  
L. E. Coolidge  
Robt. S. Cowles, Jr.  
N. H. Crews  
Luke L. Ellensburg  
Haskell W. Fox  
R. B. Gibson  
J. G. Hawkins  
Hal Henard  
N. P. Horner  
Ben J. Keebler  
C. B. Laughlin  
Haskell McCollum  
W. Lewis McGuffin  
Carl E. Romans

##### Mosheim

I. Dale Brown  
G. R. Evans

#### GRUNDY COUNTY

##### Coalmont

L. F. Littell  
(Mbr. Warren Co.)

#### HAMBLETON COUNTY

##### Morristown

Lee R. Barclay  
Howard T. Brock  
Robert L. Brown  
John D. Caldwell  
Kemp Davis  
C. J. Doby  
Y. Alvin Jackson  
John Kinser  
F. J. Little, Jr.  
E. Gene Lynch  
Harold B. Marble  
Cecil F. Mynatt, Jr.  
L. W. Nabers  
John L. Pearce  
J. W. Richardson  
Charles S. Scott  
Powell M. Trusler  
D. J. Zimmermann

#### HAMILTON COUNTY

##### Chattanooga

Chester G. Adams  
John W. Adams, Jr.  
Julian Adams  
Wm. P. Aiken  
C. H. Alper  
E. R. Anderson  
Harry S. Anderson  
J. L. Armstrong  
J. L. Arnold  
Stewart H. Auerbach  
Merton Baker  
Robert E. Baldwin  
Fred B. Ballard, Jr.  
H. B. Barnwell  
George E. Beckman, Jr.  
Samuel S. Binder  
W. R. Bishop  
Robt. W. Boatwright  
Robert J. Boehm  
Walter E. Boehm  
E. B. Bogart  
Wm. D. Brackett  
Frank S. Brannen

J. C. Brooks, Jr.  
Reid L. Brown  
Arch H. Bullard  
E. F. Buchner, Jr.  
W. R. Buttram  
W. R. Buttram, Jr.  
Earl R. Campbell  
Maurice A. Canon  
E. E. Carrier  
John P. Carter  
Bennett W. Caughran  
Douglas Chamberlain  
Edwin T. Chobot, Jr.  
O. H. Clements  
Clarence H. Connor  
J. Hicks Corey, Jr.  
Dennis M. Cornett  
George E. Cox  
John M. Crowell  
Tolbert C. Crowell  
Doyle E. Curry  
J. Tom Curry  
Thos. H. Cuitis  
James W. Davis  
O. M. Derryberry  
Robt. G. Demos  
Richard B. Donaldson  
James P. Drake  
Albert S. Easley  
A. F. Ebert  
Bruce Elrod  
Robt. E. Eysen  
R. R. Fancher  
George W. Farris  
Richard Van Fletcher  
A. C. Ford  
Shelton F. Fowler  
Wm. R. Fowler  
Guy M. Francis  
J. Marsh Frere  
O. C. Gass  
G. C. Gibson  
Robt. H. Giles, Jr.  
E. Wayne Gilley  
Paul M. Golley  
Kenneth N. Gould  
Frank B. Graham  
Joseph W. Graves  
Wm. R. Green  
O. D. Groshart  
T. A. Grubbs, Jr.  
E. Russell Hackney  
Robb B. Hagood  
Foster Hampton, Jr.  
John C. Hampton  
Frank F. Harris  
H. Barlow Harris  
E. F. Harrison  
Carl A. Hartung  
Chas. W. Hawkins  
Robt. S. Hellman  
Raymond D. Henderson\*  
H. B. Henning  
Warren B. Henry  
George Henshall  
Homer D. Hickey  
John M. Higgason  
J. M. Higginbotham  
J. F. Hobbs  
Richard G. Hofmeister  
Pope B. Holliday, Jr.  
Benton B. Holt, Jr.  
C. M. Hooper  
Rudolph Hoppe  
Don R. Hornsby  
Ernest Q. Hull  
W. P. Hutcherson  
D. Isbell  
DeWitt B. James  
Harry E. Jones  
Edward G. Johnson  
Joseph W. Johnson, Jr.  
J. E. Johnson  
J. Paul Johnson, Jr.  
D. B. Karr  
Joe B. Killebrew  
John J. Killeffer  
John E. Kimball, Jr.  
C. Windom Kinsey  
Warren H. Kinsey  
Clyde R. Kirk  
Gene H. Kistler  
C. B. Landham  
Rudolph M. Landry  
Fred D. Lanford  
H. P. Larimore

Chester L. Lassiter  
Joseph Lavecchia  
Hiram A. Laws, Jr.  
Stewart Lawwill  
Stewart Lawwill, Jr.  
Willis E. Lemon  
Philip H. Livingston  
H. D. Long  
Ira M. Long  
Thomas S. Long  
Robt. E. Mabe  
Wm. B. MacGuire  
Hugh B. Magill, Jr.  
T. J. Manson  
S. S. Marchbanks  
Fred E. Marsh  
William Marsh  
M. A. Meacham  
Harold J. McAlister  
Cooper H. McCall  
David McCallie  
Augustus McGraw  
Preston C. McDow  
George R. McElroy  
J. Edward McKinney  
H. C. Miles  
Robert T. Miller  
George A. Mitchell  
Thomas C. Monroe  
Lewis W. Moore  
Fay B. Murphy, Jr.  
Oscar B. Murray  
Robt. W. Myers  
Marvin Nathan  
Merrill F. Nelson  
Cecil E. Newell  
E. T. Newell, Jr.  
Wm. C. Pallas  
A. M. Patterson  
R. L. Patterson  
E. White Patton  
W. Houston Price  
Jesse O. Quillian  
Joe Anne Quillian  
(Mbr. Sumner Co.)  
Maurice Rawlings  
Chas. J. Ray  
Chas. W. Reavis  
W. D. L. Record  
E. E. Reisman, Jr.  
Edward E. Reisman, Sr.  
James Reynolds  
A. D. Roberts  
Gilbert M. Roberts  
G. Madison Roberts  
Robert C. Robertson  
Alfred P. Rogers  
James R. Royal  
Carlos G. Santoro  
Lewis A. Schmidt, III  
H. A. Schwartz  
Clarence Shaw  
George W. Shelton  
W. J. Sheridan  
John N. Shipp  
Edwin H. Shuck, Jr.  
Leopold Shumacker  
Harold G. Sibold  
George Sivils  
Moore J. Smith, Jr.  
Stewart P. Smith  
Philip C. Sottong  
Richard F. Stappenbeck  
Eleanor Stafford  
Harold Starr  
Willard Steele  
Willard H. Steele, Jr.  
William A. Stem  
Wm. G. Stephenson  
J. E. Strickland, Jr.  
Harry A. Stone  
Wesley Stoneburner  
Nat H. Swann, Jr.  
Charles L. Suggs, Jr.  
Bernard Tepper  
Jack Tepper  
Marjorie Tepper  
Guy K. Terrell  
Chas. Roberts Thomas  
Paul C. Thompson  
Robt. C. Thompson  
A. S. Ulin  
Louis Ulin  
Minnie Vance



Wm. E. Van Order  
Homer Venters  
Gus J. Vlasis  
O. L. Von Canon  
Arthur J. Von  
Wersowetz  
Robert A. Waters  
L. Spires Whitaker  
Jesse I. Williams  
S. H. Wood  
James G. Wright  
George G. Young  
Gay Zimmerman  
Joseph I. Zucker-  
man

*Collegedale*

A. Keith Anderson

*Daisy*

Larl H. Smith

*Hixson*

Robt. J. Pitner  
Raymond M. Price

**LOOKOUT  
MOUNTAIN**

James L. Caldwell  
Dean W. Golley

**SIGNAL  
MOUNTAIN**

Arch V. Smith  
M. I. Langston

*Soddy*

Ann Hallett

**HARDEMAN  
COUNTY***Bolivar*

D. L. Brint  
H. H. Batham  
W. E. Lawrence  
Edwin M. Levy  
B. F. McNulty  
I. Knox Tate

*Grand Junction*

L. D. Pope  
*Whiteville*  
P. M. Bishop  
Aubrey Richards

**HARDIN COUNTY***Savannah*

H. D. Blankenship,  
Jr.  
J. W. Carroll  
R. B. Debelev  
O. C. Doty  
Thos. V. Roe  
Howard W.  
Whitaker  
T. R. Williams

**HAWKINS  
COUNTY***Bulls Gap*

J. E. Kite  
(Mbr. Greene Co.)

*Church Hill*

Warner L. Clark  
(Mbr. Sullivan-  
Johnson)  
\*Robt. J. Keith  
I. H. Robertson, Jr.

*Edison*

John M. Pearson

*Rogersville*

Wm. L. Gibbons  
J. S. Lyons  
W. H. Lyons

**HAYWOOD  
COUNTY***Brownsville*

H. L. Gilliland  
Roy M. Lanier  
Glenn T. Scott  
David E. Stewart  
John Thornton, Jr.  
I. K. Welch, Jr.

**HENDERSON  
COUNTY***Lexington*

R. M. Conger  
C. J. Huntsman

\*In Service

Maurice N. Lowry  
W. C. Ramer

**HENRY COUNTY***Paris*

Denvil F. Crowe  
Arthur Dunlap  
R. Graham Fish  
L. H. Jones  
E. P. Mobley, Jr.  
Joe D. Mobley  
John E. Neumann  
W. G. Rhea  
Kenneth G. Ross  
J. Ray Smith  
C. D. Wilder  
Tom Wood

**HICKMAN  
COUNTY***Centerville*

Parker D. Elrod  
Ogle Jones  
(Mbr. Davidson Co.)

**HOUSTON  
COUNTY***Erin*

O. S. Luten  
(Mbr. Montgomery  
Co.)

**HUMPHREYS  
COUNTY***New Johnsonville*

James John Lawson

*Waverly*

J. C. Armstrong  
H. C. Capps  
Vutry C. Emmert  
F. G. McCampbell  
Doris Sanders  
Arthur W. Walker

**JACKSON  
COUNTY***Gainesboro*

W. T. Anderson  
L. Morgan Duncay  
L. R. Dudgey  
Jack S. Johnson

**JEFFERSON  
COUNTY***Dandridge*

J. I. Campbell  
(Mbr. Hamblen Co.)  
Sam D. Sullenberger  
(Mbr. Hamblen Co.)

*Jefferson City*

T. A. Caldwell  
(Mbr. Knox Co.)  
John W. Ellis  
(Mbr. Hamblen Co.)  
Sam C. Fain  
(Mbr. Hamblen Co.)  
J. E. Howard  
(Mbr. Hamblen Co.)  
Frank Milligan  
(Mbr. Hamblen Co.)  
Estle P. Muncy  
(Mbr. Hamblen Co.)

*Strawberry Plains*

Robert W. Creech  
(Mbr. Knox Co.)  
R. M. Webster  
(Mbr. Knox Co.)

*White Pine*

E. Dale Allen  
(Mbr. Hamblen Co.)  
F. R. Baker  
(Mbr. Hamblen Co.)

**JOHNSON  
COUNTY***Mountain City*

Paul J. Bundy  
R. O. Glenn

**KNOX COUNTY***Concord*

Malcolm Cobb  
R. H. Duncan  
B. D. Goodge

*Corryton*

A. D. Simmons

*Fountain City*

J. Gordon Smith

**Knoxville**

Eugene Abercrombie  
Alton Absher  
N. D. Acree, Jr.  
J. E. Acker, Jr.  
F. Edward Acuff  
Robert L. Akin  
John W. Avera  
Robert M. Baker  
O. E. Ballou  
Floyd N. Bankston  
Walter C. Brahm  
Spencer Y. Bell  
Walter H. Benedict  
Chas. W. Black  
Wade H. Boswell  
H. O. Bourkard  
Jacob T. Bradsher  
Richard F. Brantley  
Aubia D. Branson  
Robert Brashear  
L. A. Bricude  
Robert J. Brimi  
Clayton M. Biordine  
Robert Brooks  
Fred F. Brown, Jr.  
Horace E. Brown  
Raymond C. Bunn  
James A. Burdette  
John H. Burkhardt  
J. Ed Campbell  
P. H. Cardwell  
C. S. Carlson  
Frederick W. Carr  
L. G. Caylor  
Jack Chesney  
L. Warren Chesney  
H. S. Christian  
H. E. Christenberry,  
Jr.  
K. W. Christenberry  
W. F. Christenberry  
C. L. Chumley  
William E. Clark  
Edward S. Clayton  
H. G. Coker  
I. Reid Collman  
Margherita C. Cook  
Sam M. Cooper  
M. L. Courtney  
James B. Cox  
John I. Craven  
William R. Cross  
Miles S. Crowder  
J. P. Cullum  
H. K. Cunningham  
C. Harwell Dabbs  
John H. Daugherty  
Daniel Davis  
Lloyd C. Davis  
Martin Davis  
Oliver DeLozier  
R. V. DePue, Jr.  
W. A. DeSautelle  
A. W. Diddle  
Sheldon Domm  
W. F. Dorsey  
James E. Downs  
R. N. Duffy, Jr.  
Chas. R. Earnest, Jr.  
E. M. Edington  
Edward W. Ellis  
J. B. Ely  
W. B. Farris  
Frank A. Faulkner  
Mark P. Fecher  
George H. Fimer  
J. Marsh Fiere, Jr.  
Wm. F. Gallivan  
Frank B. Gaylon, Jr.  
Joseph I. Garcia  
Wm. H. Gardner  
George L. Gee, Jr.  
J. Vivian Gibbs  
Robt. B. Gilbertson  
Abner M. Glover  
Edgar L. Grubb  
Glenn D. Grubb  
John H. Hall  
I. R. Hamilton, Jr.  
Walter S. E. Hardy  
James P. Harmon  
David N. Hawkins  
Engene L. Haun  
Louis A. Haun  
J. T. J. Hayes, Jr.  
M. L. Hefley  
N. A. Henderson  
George G. Henson  
Zelma L. Herndon  
Howard K. Hicks  
Robert E. Higgins  
Hubert C. Hill  
Jesse C. Hill  
John R. Hill  
Oliver W. Hill, Jr.  
Victor Hill

R. L. Hobart, Jr.  
David F. Hoey  
Leon C. Hoskins  
George Turner  
Howard, Jr.  
Moses W. Howard  
Fred E. Hufstetler  
Perry M. Huggin  
E. C. Idol  
Geo. I. Inge  
C. E. Irwin  
W. J. Irwin  
A. L. Jenkins  
Harry H. Jenkins  
Francis S. Jones  
Margaret E. Joyce  
H. M. Kelso  
A. Glenn Kennedy  
John O. Kennedy  
John E. Kesterson  
Victor H. Klein, Jr.  
Lamar L. Knight  
Willis F. Kraemer  
A. Hobart Lancaster  
Robert F. Lash  
William M. Law  
J. K. Lawson  
Robert P. Layman  
Robert S. Leach  
Walter J. Lee, Jr.  
R. J. Leffler  
John H. Leshner  
Robert A. Lewis  
Felix J. Line  
Frank London  
Henry H. Long  
Geo. S. Mahon  
Margaret Maynard  
Bruce M. Mc-  
Campbell  
Roy McCarty  
A. R. McCullough  
M. D. McCullough  
Robert W. Meadows  
Alfred F. Miller  
Edwin E. Miller  
Foy B. Mitchell  
John F. Mohr  
Ralph H. Monger  
J. L. Montgomery  
John D. Moore  
Owen D. Moore  
Joel C. Morris  
J. F. Morrow  
Arthur J. Muller  
G. E. Murray  
William S. Muse  
J. B. Naive  
Carl A. Nelson, Jr.  
H. L. Neuensch-  
wander  
Robert W. Newman  
Eugene P. Niceley  
Hazel M. Nichols  
Ralph Nichols  
G. T. Novinger  
Elvin B. Noxon  
Kenneth A.  
O'Connor  
Harry K. Ogden  
Homer C. Ogle  
B. M. Overholt  
Nicholas D. Pappas  
Reese W. Patterson,  
Jr.  
Robert F. Patterson,  
Jr.  
Wm. L. Patterson  
F. H. Payne  
E. Converse Peince  
Herschel Penn  
Jarrell Penn  
H. Dewey Peters  
B. F. Peterson  
Ira S. Pierce  
Cecil E. Pittard  
S. Joe Pittard  
W. W. Potter  
William F. Powell  
Bruce R. Powers  
Wilson W. Powers  
H. Hammond  
Pride  
Thomas C. Prince,  
Jr.  
James C. Prose  
J. B. Purkall, Jr.  
John A. Range  
Joe L. Raulston  
Freeman Rawson  
W. Gihner Reed  
Wm. H. Reeder  
Paul D. Richards  
N. G. Riggins  
James C. Roberts  
Frank P. Rogers  
Wm. K. Rogers

Kenneth Rule  
Richard C. Sexton  
J. H. Saffold  
Wm. A. Shelton  
Alex B. Shipley  
Elton E. Shouse, Jr.  
Kenneth Shoemaker  
E. Chas. Siemknecht  
Frank J. Slemmons  
Chas. C. Smeltzer  
E. B. Smith  
Joe T. Smith  
Vernon I. Smith  
W. E. Smith  
John R. Smoot  
James L. Southworth  
J. M. Stockman  
J. Hooper Stiles, Jr.  
Thos. F. Stevens  
Wm. K. Swann, Jr.  
F. L. Tause  
George W. Tharp  
D. R. Thomas  
Philip Thomas  
Wm. M. Tipton  
Lucian W. Trent  
Geo. M. Trotter  
M. Frank Turney  
Norma B. Walker  
Sidney L. Wallace  
C. L. Walton  
R. G. Waterhouse  
David H. Waterman  
Alvin J. Weber, Jr.  
Roy A. Wedekind,  
Jr.  
Fred West  
Herbert F. White  
Roger E. White  
Richter H. Wiggall  
Richard B.  
Willingham  
G. A. Williamson,  
Jr.  
Perry Williamson  
Leon J. Willien  
J. D. Winebrenner  
John H. Wolaver  
R. B. Wood  
James P. Worden  
Vincent T. Young  
Eugene G. Zachary  
Charles R. Zirkle  
George A. Zirkle,  
Jr.

*Mascot*

H. V. Anderson  
Hubert Howard  
Vesser, Jr.

*Powell Station*

L. F. Cruze

**LAKE COUNTY***Ridgely*

W. B. Acree

*Tiptonville*

J. R. Holefield  
W. T. Kanney  
E. B. Smythe

**LAUDERDALE  
COUNTY***Halls*

J. T. Ehmre  
J. G. Olds  
(Mbr. Northwest  
Penn. Academy)

*Ripley*

A. J. Butler, Jr.  
J. L. Dunavant  
James Howard  
Ragsdale  
Landrum S. Tucker  
P. W. Walker  
Claude R. Webb

**LAWRENCE  
COUNTY***Lawrenceburg*

V. H. Crowder  
W. O. Crowder  
J. W. Danley  
Boyd P. Davidson  
L. B. Molloy  
V. L. Parrish  
W. S. Sutherland  
(Mbr. Davidson  
Co.)  
Carson E. Taylor

*Loretto*

Rav E. Methvin  
M. H. Weathers

**LEWIS COUNTY***Hohenwald*

William E. Boyce  
(Mbr. Maury Co.)  
W. C. Keaton  
(Mbr. Maury Co.)

**LINCOLN  
COUNTY***Fayetteville*

L. M. Donaldson  
William D. Jones  
Ben H. Marshall  
R. E. McCown  
J. V. McRady  
T. A. Patrick, Jr.  
C. D. Toone  
Paul E. Whittemore

**LOUDON  
COUNTY***Lenoir City*

Harold D. Freedman  
(Mbr. Knox Co.)  
R. V. Taylor  
(Mbr. Knox Co.)

*Loudon*

Corrie Blair  
(Mbr. Knox Co.)  
Samuel A. Harrison  
W. B. Harrison  
(Mbr. Knox Co.)  
Wm. T. McPeake  
(Mbr. Knox Co.)  
J. R. Watkins  
(Mbr. Knox Co.)

**MACON COUNTY***Lafayette*

C. C. Chitwood, Jr.  
E. M. Froedge  
Max E. Painter  
John R. Smith

**MADISON  
COUNTY***Bemis*

Kelly Smythe  
Allen N. Williams,  
Jr.

*Jackson*

J. G. Anderson  
Thomas K. Ballard  
R. J. Barnett  
G. H. Berryhill  
Jack H. Booth  
Wm. H. Brooks  
Swan Burrus  
Swan Burrus, Jr.  
Hughes Chandler  
Daniel Copeland  
Stanley E. Crawford  
Wm. G. Crook  
G. B. Dodson, Jr.  
Daniel L. Donovan  
J. E. Douglass  
Roy A. Douglass, Jr.  
E. W. Edwards  
Fred M. Friedman  
W. T. Fitts  
Oliver H. Graves  
W. W. Harrison  
Geo. Harvey, Jr.  
Henry H. Herron  
Robert S. Hill  
C. L. Holmes  
G. B. Hubbard  
Leland M. Johnston  
Chester K. Jones  
G. Frank Jones  
Duval H. Koonce  
James A. Langdon,  
Jr.  
Harold T. McIver  
Frank A. Moore  
H. N. Moore  
Lamb B. Myhr  
R. M. Neudecker  
John B. Nuckolls  
L. C. Pascal, Jr.  
J. C. Pearce  
James A. Phillips  
W. M. Phillips  
J. E. Powers



John G. Riddler  
Wm. H. Roberts  
Howard J. Simpson  
Charles C. Stauffer  
J. R. Thompson, Jr.  
S. Allen Truex  
Charles F. Webb  
Charles H. Webb  
F. F. Williamson,  
Jr.  
George B. Wyatt  
Paul E. Wylie  
H. R. Yarbrow

#### MARION COUNTY

*Jasper*  
J. G. McMillan  
(Mbr. Hamilton Co.)

*South Pittsburg*  
J. B. Havron  
(Mbr. Hamilton Co.)  
William Headrick,  
Jr.  
(Mbr. Hamilton Co.)  
Eugene Ryan  
(Mbr. Hamilton Co.)

*Viston Taylor*  
(Mbr. Hamilton Co.)  
*Whitwell*  
Cleo Chastain  
(Mbr. Hamilton Co.)  
Wm. G. Shull  
(Mbr. Hamilton Co.)

#### MARSHALL COUNTY

*Belfast*  
H. A. Morgan, Jr.

*Lewisburg*  
Kenneth Brown  
J. T. Gordon  
Lloyd Grymes  
Hoyt C. Harris  
J. C. Leonard  
(Mbr. Maury Co.)  
James W. Limbaugh, Jr.  
Kenneth J. Phelps  
W. S. Poarch  
J. F. Rutledge

#### MAURY COUNTY

*Columbia*  
D. B. Andrews  
Wendell C. Bennett  
Mildred Casey  
William N. Cook  
J. R. Duley  
Edward Ewton  
Wm. G. Fuqua  
C. C. Gardner, Jr.  
Daniel Gray, Jr.  
Harry C. Helm  
Wm. N. Jernigan  
Ralph Kustoff  
Ambrose M. Langa  
Robin Lyles  
Clay R. Miller  
Edwin K. Provost  
Warren Rucker  
B. J. Vinson  
Leon S. Ward  
J. W. Wilkes, Jr.  
Eleanor Williamson  
Thomas K. Young,  
Jr.

*Mt. Pleasant*  
C. D. Walton

#### McMINN COUNTY

*Athens*  
W. R. Arrants  
Karl K. Boyd  
Charles T. Carroll  
L. D. Curtner  
R. W. Epperson  
C. O. Forsee  
W. Edwin Foree  
Robert G. Hewgley  
Mildred Jones  
J. A. Powell, Jr.  
Helen M. Richards  
A. W. Shelamer  
L. H. Sheldam  
—

\*In Service

Robert W. Trotter  
*Etowah*  
Wm. K. Fife  
S. Boyd McClary, Jr.  
John C. Sharp  
H. P. Whittle

#### McNAIRY COUNTY

*Selmer*  
T. N. Humphrey  
Harry L. Peeler  
W. A. Phillips  
James Smith  
Montie E. Smith, Jr.  
Howard W. Thomas

#### MEIGS COUNTY

*Decatur*  
William M. Davis  
(Mbr. McMinn Co.)

#### MONROE COUNTY

*Madisonville*  
R. C. Kimbrough  
F. Houston Lowry  
Horace M. McGuire  
*Sweetwater*  
J. H. Barnes  
W. J. Cameron  
Joe H. Henshaw  
D. F. Heuer, Jr.  
T. A. Lowry  
J. E. Young

#### Monroe

Troy Bagwell  
(Mbr. Knox Co.)

#### MONTGOMERY COUNTY

*Clarksville*  
Edward R. Atkinson  
Carlos B. Brewer  
E. P. Cutter  
Sam M. Doane, Jr.  
M. M. Green  
V. H. Griffin  
Bryan T. Igchart  
Howard R. Kennedy  
J. H. Ledbetter, Jr.  
James L. McKnight  
Arthur A. McMurray  
William G. Lyle  
Jack Ross  
Bryce F. Runyon  
A. F. Russell  
M. L. Shelby  
D. R. Shipley  
Marion E. Spurgeon  
Robt. H. Tosh  
Charles A. Tialhern  
Harold V. Vann  
Troy A. Walker  
William H. Wall, Jr.  
Paul E. Wilson  
R. M. Workman  
*New Providence*  
Nancy Tosh

#### MOORE COUNTY

*Lynchburg*  
F. Harlan Booher  
(Mbr. Lincoln Co.)

#### MORGAN COUNTY

*Oakdale*  
J. H. Carr  
(Mbr. Roane Co.)

#### OBION COUNTY

*Kenton*  
Alden H. Gray  
(Mbr. Consolidated Cos.)

*Troy*  
Chesley H. Hill

*Union City*  
J. Kelly Avery

M. A. Blanton, Jr.  
Harold Butler  
H. W. Calhoun  
Wm. N. Carpenter  
B. O. Garner  
Dan C. Gary

R. L. Gilliam, II  
Lawrence Jones  
E. P. Kingsbury, Jr.  
R. G. Latimer, Jr.  
E. McCall Morris  
James W. Polk  
Malcolm T. Tipton  
O. A. Zeller, Jr.

#### OVERTON COUNTY

*Livingston*  
M. E. Clark  
H. B. Nevans  
Denton D. Norris

#### PERRY COUNTY

*Linden*  
B. L. Holladay  
Gordon H. Turner,  
Jr.

#### POLK COUNTY

*Benton*  
John H. Lillard  
(Mbr. McMinn Co.)  
*Copperhill*  
H. H. Hyatt  
(Mbr. Hamilton Co.)  
J. T. Layne  
(Mbr. Hamilton Co.)  
W. C. Zachary, Jr.  
(Mbr. Knox Co.)

*Ducktown*  
Wm. R. Lee  
(Mbr. Hamilton Co.)

#### PUTNAM COUNTY

*Algood*  
I. T. Moore, Jr.  
*Cookeville*  
Jack L. Clark  
J. T. Deberry  
Kenneth L. Haile  
Wm. A. Hensley, Jr.  
Jere W. Lowe  
William Mattson  
Thurman Shipley  
Wm. S. Taylor  
J. Fred Terry

#### Monterey

C. A. Collins  
T. M. Crain

#### RHEA COUNTY

*Dayton*  
Albert C. Broyles  
(Mbr. Hamilton Co.)  
James L. Mathis  
(Mbr. Hamilton Co.)  
J. J. Rodgers  
(Mbr. Hamilton Co.)  
W. A. Thomison  
(Mbr. Hamilton Co.)  
*Spring City*  
Conrad L. Grabeel  
(Mbr. Roane Co.)

#### ROANE COUNTY

*Harriman*  
Thomas L. Bowman  
Fred J. Hooper  
Lewis T. Howard  
H. Stratton Jones  
L. A. Killeffer  
John R. Sisk

#### Kingston

Carl Henry  
James A. Hoffmeister  
Chas. W. Moorefield  
Nat Sugarman

*Oak Ridge*  
(See Anderson Co.)  
Gould A. Andrews  
Robt. P. Ball

R. R. Bigelow  
Velta F. Briuks  
Marshall Bruicer  
Chas. Congdon  
Betty Cooper  
John P. Crews

Kenneth Crounse  
Dexter Davis  
John DePersio  
Robt. E. DePersio  
J. L. Diamond  
Earl Eversole  
T. Guy Fortney  
C. B. Gurney  
William P. Hardy  
J. M. Hays  
William Holden  
R. A. Johnson  
Harvey Keese, Jr.  
Avery P. King  
Kenneth S. Lane  
Thomas A. Lincoln  
Joseph S. Lyon  
Paul R. Marsh  
Robert H. Messier  
Dana Nance  
Bill M. Nelson  
Etna Little Palmer  
Elmer L. Parrott  
Lewis T. Preston  
William W. Pugh  
Charles J. Ragan  
Thos. L. Rav  
Hyman Rossman  
Richard Rucker  
Henry B. Rulley  
Beecher W. Sitterson  
Paul E. Spray  
C. Harold Steffee  
Charles R. Sullivan  
Daniel M. Thomas  
Gino F. Zanolli

#### Oliver Springs

S. J. Van Hook  
Fred O. Stone  
(Mbr. Anderson-Campbell Co.)

#### Rockwood

Thomas A. Fuller  
Robert S. Hicks  
R. F. Regester  
Geo. Shacklett  
G. E. Wilson

#### ROBERTSON COUNTY

*Cedar Hill*  
R. H. Elder

#### Cross Plains

Ora W. Ramsey

#### Ridgetop

E. E. Botsford

#### Springfield

John M. Jackson  
N. H. Raines  
W. P. Stone  
John B. Turner  
Raymond Webster  
(Mbr. Smith Co.)  
J. E. Wilkison

#### RUTHERFORD COUNTY

#### Murfreesboro

Carl E. Adams  
W. Stanley Barham  
J. B. Black  
J. T. Boykin  
John Cason  
B. S. Davidson, Jr.  
Paul Estes  
R. James Garrison  
S. C. Garrison, Jr.  
Gilbert Gordon  
Sam H. Hay  
R. D. Hollowell  
J. K. Kaufman  
Lois M. Kennedy  
M. B. Murfree, Jr.  
Eugene P. Odom  
James Payne  
B. W. Rawlins  
Wm. W. Shacklett  
James W. Tenpenny

#### SCOTT COUNTY

*Norma*  
D. T. Chambers

#### Oneida

W. S. Cooper  
M. F. Frazier  
H. M. Leeds  
Roy L. McDonald  
M. E. Thompson  
Milford Thompson

#### SEQUATCHIE COUNTY

#### Dunlap

Charles Graves  
(Mbr. Hamilton Co.)  
D. Clifford Ludwigton, Jr.  
(Mbr. Hamilton Co.)

#### SEVIER COUNTY

#### Gatlinburg

Ralph H. Shilling  
Bruce H. Sisler

#### Sevierville

R. A. Broady  
John M. Hickey, Jr.  
R. A. McCall  
Chas. L. Roach  
Robert F. Thomas  
O. H. Yarbber

#### SHELBY COUNTY

#### Arlington

Malcolm A. Baker

#### Collierville

R. F. Kelsey

#### Cordova

C. A. Chaffee

#### Forest Hill

J. E. Clark

#### Germantown

John T. Carter, Jr.

#### Memphis

Sara E. Abbott  
Robert F. Ackerman  
John Q. Adams  
L. H. Adams  
Ralph M. Addington  
Henry L. Adkins  
Justin H. Adler  
Lorin E. Anger  
Albert M. Alexander  
James E. Alexander  
C. D. Allen  
Chester G. Allen  
F. Pearson Allen  
Frank S. Allen  
Robert G. Allen  
F. H. Alley  
Jacob Alperin  
James L. Alston  
J. P. Anderson  
Sam B. Anderson,  
Jr.  
William F. Andrews  
D. H. Anthony  
Robert A. Anthony  
Blake Arnoult  
J. M. Aste  
H. E. Atherton  
Leland L. Atkins  
Edgar L. Austin  
W. W. Aycock  
J. C. Ayres, Jr.  
John V. Baird  
J. Earl Baker  
George F. Bale  
A. L. Ball  
Aden W. Barlow  
James R. Barr  
Jerome N. Barrasso  
Robert Basist  
L. S. Baskin  
John C. Beard, Jr.  
G. H. Bassett  
Emmett D. Bell, Jr.  
Arthur L. Bellott,  
Jr.  
Charles A. Bender  
Hal E. Bennett  
B. F. Benton  
Wm. M. Berton  
I. M. Bethea  
Ralph C. Bethea  
Richard O. Bicks  
James D. Biles, Jr.  
C. R. Bishop  
W. A. Bisson  
W. T. Black, Jr.  
Sam Blackwell  
Basil A. Bland, Jr.  
Breen Bland  
C. D. Blessingame  
Phil Blecker  
Robert F. Bonner

Howard A. Boone  
James L. Booth  
C. Whitman Bourg  
R. L. Bourland  
R. L. Bowlin  
Earl P. Bowerman  
H. B. Boyd  
Boyer M. Brady, Jr.  
E. E. Bramlitt  
Winston Braun  
R. R. Braund  
James T. Bridges  
Carey Bringle  
Louis P. Britt, Jr.  
D. A. Broady  
Joseph H. Brock  
J. H. Bronstein  
Maury Bronstein  
James S. Brown  
Lawrence E. Brown  
Harry G. Bryan  
Malvern T. Bryan  
K. M. Buck  
W. D. Burkhalter  
Orin D. Butterick,  
Jr.

James S. Byas  
R. A. Calandruccio  
Edward G. Caldwell  
M. K. Callison  
E. Guy Campbell  
John W. Campbell  
(Mbr. Knox Co.)  
Ernest A. Canada  
Dominic J. Cara, Jr.  
B. W. Cannon  
Robert S. Caradine,  
Jr.  
D. M. Carr  
David S. Carroll  
Dan Carruthers, Jr.  
Harvey W. Carter  
L. L. Carter  
A. H. Chamberlain,  
Jr.  
I. M. Chambers, Jr.  
W. C. Chaney  
Fenwick W. Chap-  
pell

R. E. Ching  
Joseph M. Chisholm  
Glenn Clark  
Charles L. Clarke  
James A. Clark, Jr.  
E. W. Cocke, Sr.  
E. W. Cocke, Jr.  
Lawrence L. Cohen  
M. D. Cohen  
Max H. Cohen  
W. C. Colbert  
F. H. Cole  
B. C. Collins  
James H. Collins  
Frank H. Collins  
E. D. Connell  
John P. Conway  
Lewis H. Cook  
George A. Coors  
Giles A. Coors  
Arthur A. Cox  
Erwin M. Cox  
John E. Cox  
E. A. Crawford  
Lloyd V. Crawford  
P. T. Crawford  
A. H. Crenshaw  
J. A. Crisler, Jr.  
Robert N. Crockett,  
Jr.

C. V. Crosswell  
James W. Culbertson  
Alvin J. Cummins  
Orin L. Davidson  
W. E. David  
(Mbr. Lauderdale Co.)

Harry Davis  
J. M. Davis  
R. A. Davison  
W. J. Deaton  
Charles J. Deere  
V. J. Demarco  
McCarthy DeMere  
W. E. Denman  
Richard DeSausure  
Alice R. Deutsch  
J. L. Dies  
L. W. Diggs  
D. E. Dismukes  
John B. Dorian, Jr.  
Wm. H. L. Dornett  
Thomas G. Dority  
Chas. V. Dowling  
Paul T. Drenning  
Horton DuBard  
W. D. Dunavant

James T. Duncan, Jr.  
 Elmer S. Eddins  
 Allen S. Edmonson  
 Joseph A. Elgart  
 E. U. Epstein  
 Cyrus C. Erickson  
 James N. Etteldorf  
 C. Barton Litter  
 O. A. Eubanks, Jr.  
 J. D. Evans  
 M. L. Evans  
 H. B. Everett  
 B. E. Everett, Jr.  
 Harold G. Fauley  
 Turley Farrar  
 Harold Feinstein  
 W. C. Ferrell  
 Burt Friedman  
 Daniel F. Fisher  
 James B. Flanagan  
 J. C. Flaniken  
 J. H. Francis  
 W. Edward French  
 Eugene W. Gadberry  
 Joseph C. Garbarini  
 T. B. Garbin  
 J. A. Gardner, Jr.  
 Elsbeth Gehorsam  
 O. S. Gibbs  
 W. S. Gilmer, Jr.  
 D. Frederick Gioia  
 C. E. Gilliespie  
 B. H. Ginn  
 George E. Gish  
 Thomas G. Gladding  
 Willard G. Glass  
 C. H. Glover  
 Fred A. Goldberg  
 Ralph Goldman  
 Lester I. Goldsmith  
 D. W. Goltman  
 J. S. Goltman  
 I. O. Gordon  
 H. B. Gotten  
 Nicholas Gotten  
 Robert D. Goutley  
 Thomas F. Gover  
 W. H. Gragg  
 W. H. Gragg, Jr.  
 H. D. Gray  
 Arthur W. Green  
 C. R. Green  
 Jack R. Greenfield  
 A. J. Grobmyer, Jr.  
 Pauline Grodsky  
 Morton L. Gubin  
 Nobel Guthrie  
 James S. Hainsolm  
 Jack R. Halford  
 E. R. Hall  
 Emmett R. Hall, Jr.  
 V. A. Hall  
 Margaret A. Halle  
 Ralph S. Hamilton  
 J. F. Hamilton  
 Wm. L. Hamilton  
 John Hamsher  
 B. F. Hardin  
 Mallory Harwell  
 Howard B. Hasen  
 Wm. H. Hatfield  
 A. Kenneth Hawkes  
 C. D. Hawkes  
 Jean M. Hawkes  
 C. L. Hay  
 I. K. Haynes  
 C. H. Heacock  
 Lonnie C. Heury  
 A. L. Herring  
 George B. Higley  
 Fontaine S. Hill  
 James M. Hill  
 E. E. Hines  
 John Lewis Hobson  
 W. K. Holtman, Jr.  
 M. W. Holehan  
 J. E. Hohnes  
 Arthur F. Horne  
 Hubert L. Hotchkiss  
 C. H. Householder  
 John L. Houston  
 William T. Howard  
 M. W. Howorth  
 James G. Hughes  
 John D. Hughes  
 Max O. Hughes  
 John V. Hummell  
 Sam F. Hunter  
 W. E. Hunt  
 J. H. Iams  
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 N. W. Kuykendall, Jr.  
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 M. W. Latham  
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## INDEX TO VOLUME 52

## PAGES BY ISSUE

January	1-38	May	165-208	September	347-385
February	39-74	June	209-268	October	387-436
March	75-116	July	269-306	November	437-474
April	117-164	August	307-346	December	475-522

## INDEX OF AUTHORS

Adams, Jesse	117	Gilbertson, Robert B.	360	Oglesby, Claude D.	165
Aivazian, G. H.	446	Goldner, Fred	480	Owens, Guy	125
Auerbach, Stewart H.	80	Gragg, Wilford H., Jr.	273	Paster, Samuel	178
Avlonitis, Emmanuel G.	409	Groner, Frank S.	498	Pate, James W.	356
Beckman, George E.	393	Grossman, Laurence	480	Patterson, Reese W.	13
Bigelow, Robert R.	78	Harris, A. Page	192	Peirce, E. Converse, II	39
Booth, Jack H.	83	Hitch, Tom J.	503	Pigott, J. D.	45
Campbell, Ernest S.	4	Hughes, Felix A.	312, 356	Porch, Phillip P., Jr.	192
Campbell, J. Ed., Jr.	13	Hughes, John Davis	150	Rawson, Freeman L.	39
Campbell, Roger E.	312, 356	Hutcheson, R. H.	4	Riddell, Douglas H.	347
Carlson, Robert I.	1	Jones, Wesley F.	356	Rogers, Carl	408
Cate, William R., Jr.	183	Keisker, Henry W.	356	Rogers, William K.	39, 50
Cheij, Abraham	397	Kintner, Elgin P.	475	Rowe, Fred A.	53
Culley, Thomas S.	366	Kirtley, James A.	1	Rychener, Ralph O.	495
Dabbs, C. Harwell	39	Lambeth, Samuel S.	475	Sandusky, William R.	437
Dale, W. Andrew	315	Lawrence, Allen	285	Scott, H. William, Jr.	1, 117
Deutsch, Alice R.	397	Leffler, R. J.	404	Sessions, Robert T.	76
Diamond, J. L.	10	Lewis, Philip M.	165	Shea, John J., Jr.	7
Dingley, Albert F., Jr.	366	Martin, J. D.	75	Smith, Scott M.	307
Dom, Sheldon E.	50	Marsh, William H.	437	Stewart, Marcus J.	387
Farringer, J. L., Jr.	278	Myers, Roland H.	448	Trabue, Charles C.	505
Fitts, Gladys M.	4	McCaughan, John J., Jr.	312	Tudor, John M.	352
Flippin, Harrison F.	269	McGee, Lawrence S., Jr.	76	Turner, Carrol C.	442
Foster, John H.	1	McSwain, Barton	76	Warren, Dean	437
Friedman, Burt	171	Nakamura, Y.	80	Waterman, David H.	50
Frist, Thomas	501	Nance, Dana Wilson	288	Wolff, Marvin L.	483

## INDEX OF SUBJECTS

Abbreviations: "ab" for abstract; "ed" for editorial; "pp" for president's page; "cc" for clinical staff conference; "cpc" for clinicopathologic conference; (*) for original articles.		Marfan's syndrome (*)	80
ADRENAL GLAND, pheochromocytoma (cpc)	18	operation for aorto-iliac occlusive disease, anterior myocardial infarction during (cc)	292
AGING: see Medical Care		peripheral arterial disease, surgery of, diagnosis and available technic (*)	183
AIR POLLUTION, chemical luftwaffe (ed)	461	peripheral vascular complications in diabetes mellitus (*)	347
AMPUTEE, group approach in evaluation and prescription of prostheses (*)	366	peripheral vascular disease, choice of therapy (*)	315
ANESTHESIOLOGIST, role in practice of medicine (*)	307	BOOK REVIEWS	35, 74, 265, 304, 434
ANNOUNCEMENTS	36, 74, 115, 164, 207, 265, 304, 345, 383, 434, 511	CANCER	
ANTIBIOTICS, caution—antimicrobial agents ahead (*)	269	Bowen's disease and relationship to systematic cancer (ab)	392
AORTA: see Blood vessels		cecum (cpc)	15
ARSENIC, poisoning, therapy for amebiasis (cpc)	485	palliative treatment, chemotherapeutic agents (*)	45
ARTERY: see Blood vessels		prostatic, curable (*)	352
ARTHRITIS: see Joints		pulmonary, metastatic (cpc)	134
BEHAVIOR, neurogenesis of (*)	442	thyroid, symposium on	75
BLOOD VESSELS		CENTRAL STATE HOSPITAL, historic notes	470
aorta, acute dissecting aneurysm (ab)	449	CLINICOPATHOLOGIC CONFERENCE	15,
aorta, acute dissecting aneurysm diagnosis and selection of patients for surgery (ab)	445	18, 60, 92, 134, 195, 332, 371, 419, 455, 485	
aortography and angiography, intravenous (ab)	359	CLUB-FOOT, recurrent congenital (ab)	128
aortography, transventricular (*)	312	CORONARY DISEASE: see Heart	
aortic aneurysm, abdominal, surgical complication of resection (cpc)	332	CUSHING'S DISEASE: see Pituitary	
arterial replacement, experience with (*)	1	DEATHS	29, 68, 108, 156, 202, 261, 342, 379, 425, 464, 506
arterial replacements, failures of homografts (ab)	403	DIABETES MELLITUS	
cerebral and coronary vascular disease, use of anticoagulants in treatment (*)	171	enzyme tests for glucose (ab)	25
direct surgical repair lesions of aortic valve and ascending aorta with extracorporeal circulation (*)	117	evaluation of nitroprusside dip test for ketone bodies (ab)	12
		false glycosuria (ab)	55
		oral therapy for diabetics with tuberculosis (ab)	3
		personality disorder (cc)	85
		sexual function, male diabetics (ab)	59

- vascular complications, peripheral (\*) 347
- EDITORIALS** 27, 64, 98, 147, 200, 260, 297, 339, 377, 423, 461, 494
- EMBOLISM**, pulmonary (cpc) 195
- ESOPHAGUS**
- cardiospasm (\*) 50
- cardiospasm, psychosomatic correlations (\*) 178
- hiatus hernia of diaphragm (\*) 273
- varices (ed) 148
- EYE**
- abnormal accommodation (\*) 285
- cataract surgery, alpha-chymotrypsin in (\*) 165
- external diseases, treatment (\*) 53
- glaucoma (ed) 339
- glaucoma, clinical value of tonography in diagnosis and follow-up (\*) 397
- oval window, fenestration (\*) 7
- exophthalmos, progressive (\*) 13
- spontaneous hemorrhage into primary vitreous (\*) 448
- FEMUR**, aseptic necrosis of femoral head, treatment of bone grafting (ab) 49
- FETAL DEATH**, slip-knot of membranes about cord (\*) 408
- FRACTURES**
- bonding of, plastic adhesives (ab) 44
- tibia, intercondylar eminence (ab) 124
- HAND**, carpal ganglion as cause of palalysis, ulnar nerve (\*) 83
- HEALTH**
- national hospital week (ed) 149
- high cost of (ed) 99
- HEART**
- anterior myocardial infarction occurring during operation for aorto-iliac occlusive disease (cc) 292
- atherosclerosis, premature (cc) 129
- congenital disease, surgical treatment (cc) 414
- coronary and aortic atherosclerosis, in negroes (ab) 484
- coronary artery disease, distribution of mortality in Tennessee 1943-53 (\*) 4
- coronary artery disease, evaluation of, with paper electrophoresis (\*) 404
- coronary and cerebral vascular disease, use of anticoagulants in treatment (\*) 171
- coronary disease, long-term anticoagulant therapy (ab) 146
- coronary, "silent," frequency and characteristics (ab) 337
- direct surgical repair, lesions aortic valve and ascending aorta with extracorporeal circulation (\*) 117
- electrocardiogram in pectus excavatum (ab) 9
- open heart surgery, new method (\*) 39
- rheumatic heart disease, prophylaxis of rheumatic fever (ab) 82
- transaminase test, evaluation of (ab) 182
- ventricular septal defects, diagnosis (ab) 117
- HISTORICAL NOTES** 470
- HYPERLIPEMIA**, essential, bone pain in, (\*) 483
- HYPERTENSION**, depressive reaction in, comparison of those treated with rauwolfia and with no specific antihypertensive treatment (ab) 272
- HYPOGLYCEMIA** (\*) 360
- tobacco (ed) 297
- INFECTION**, caution—antimicrobial agents ahead (\*) 269
- INSURANCE**
- health (pp) 26
- health, prepaid (pp) 338
- medical, some problems of (\*) 150
- prepaid medical care plans (pp) 422
- INTESTINE**
- cecum, cancer of (cpc) 15
- utero-ileostomy, conversion of uretero-sigmoidostomy (\*) 192
- JOINTS**, osteoarthritis of knee, value of intra-articular injections (ab) 52
- KIDNEY**
- artificial (\*) 480
- intermittent peritoneal lavage, evaluation of (ab) 277
- ocular manifestations of chronic renal tubular insufficiency (ab) 296
- urinary sediment in diagnosis of renal disease (ed) 377
- LEGISLATION**
- doctor's participation in (pp) 97
- facts about the Forand bill 311, 314
- Forand bill (pp) 460
- Forand bill and the hospitals (ed) 463
- Forand bill and the hospitals (\*) 498
- Forand bill—what it means to you (\*) 495
- Forand bill—statement of T.S.M.A. 340
- political action or socialism (\*) 503
- political action in Tennessee (\*) 505
- LUNG**
- cancer, metastatic (cpc) 134
- embolism, pulmonary (cpc) 195
- pulmonary insufficiency, tracheal fenestration operation (\*) 356
- MALPRACTICE**, medico legal nightmare (ed) 148
- MEDICAL CARE**
- aged, providing clinical care for (pp) 63
- aging (pp) 259
- decade of British health service (ed) 424
- health care of aged, meeting of joint council to improve the (ed) 377
- health fund drives, what is the future of (ed) 65
- surgical trusteeship (ed) 28
- Tennessee council on aging (\*) 501
- the face of medicine (pp) 199
- the surgical conscience (ab) 418
- MEDICAL NEWS IN TENNESSEE** 32, 71, 111, 161, 204, 262, 301, 343, 381, 427, 466, 508
- MEDICARE** 66
- MENTAL DISEASE**
- depressive reaction in hypertension patients treated with rauwolfia (ab) 272
- neurogenesis of behavior (\*) 442
- psychiatric diagnostic problem (cc) 450
- schizophrenia (ed) 64
- thioridazine in treatment (\*) 446
- NATIONAL NEWS** 31, 69, 110, 160, 203, 262, 299, 380, 426, 465, 507
- NERVE**, carpal ganglion as cause of paralysis ulnar nerve (\*) 83
- NEUROPSYCHIATRIC**
- practice of surgery in hospital (ab) 459
- OVARY**, polycystic disease (\*) 475
- PAIN**, bone: See Hyperlipemia.
- PANCREAS**
- fibrocystic disease (cpc) 419
- pseudocyst of, selection of operation (\*) 437
- PENICILLIN**, milk-borne, urticaria in (ed) 200
- PERIARTERITIS NODOSA** (cpc) 60
- PERSONAL NEWS** 34, 73, 114, 163, 206, 264, 303, 344, 382, 433, 469, 510
- PERSONALITY DISORDER**, and diabetes mellitus (cc) 85
- PHARYNX**, clinical significance of lump in throat (ab) 413
- PITUITARY GLAND**, Cushing's syndrome, surgical treatment of (\*) 278
- PLACEMENT SERVICE** 38, 116, 208, XLV, 306, 385, 436, 474, 522
- POISONING**: See Arsenic
- POLIOMYELITIS IMMUNIZATION** (ed) 98, 202
- PORPHYRIA**, cutanea tarda (\*) 10
- PREGNANCY**
- abdominal (cc) 326
- neurologic complications of (cc) 368
- PRESIDENT'S PAGE** 26, 63, 97, 143, 199, 259, 296, 338, 376, 422, 460, 493
- PROGRAMS AND NEWS OF MEDICAL SOCIETIES** 29, 68, 108, 156, 202, 261, 299, 343, 380, 425, 464, 506



PROSTATE, cancer, curable (*)	352	committees (1959-60)	267
PUBLIC RELATIONS (pp)	376	council meetings, abstract of minutes	257
PUBLIC SERVICE COMMITTEE, looking for a project for (ed)	297	house of delegates, abstracts of proceedings	209
PURPURA, thrombotic thrombocytopenic (cpc)	92, 455	membership roster	512
RADIATION, advisers on (ed)	423	new president, Monroe	144
REHABILITATION, employment of the physically handicapped (*)	387	officers (1959-60)	268, 305, 386
RESUSCITATION PROBLEM (ed)	494	officers, county medical societies (1959-60)	268, 305, 386
RHEUMATIC FEVER, acute in the adult (ed)	260	program, annual	100
SARCOIDOSIS (cpc)	371	report to membership (pp)	143
SCHIZOPHRENIA (ed)	64	resolution no. 16, house of delegates (ed)	200
SPINAL FLUID, modern technics for diverting flow (*)	125	THYROID	
SPINE, treatment of fracture-dislocation cervical spine, early spine fusion (ab)	79	bromsulphthalein excretion test in diseases of (*)	409
SPLEEN, injuries of (*)	288	cancer (*)	75, 76
STAFF CONFERENCES 56, 85, 129, 292, 326, 368, 414, 450		cancer, treatment of (*)	78
STEIN-LEVENTHAL SYNDROME: See Ovary		thyrotoxicosis, atypical (ed)	27
TENNESSEE STATE MEDICAL ASSOCIATION		TRACHEA, fenestration operation for pulmonary insufficiency (*)	356
association (pp)	296	URETEROSIGMOIDOSTOMY, conversion of, to uretero-ileostomy (*)	192
board of trustees, minutes of annual meeting	253	URETHRAL CATHETER, a two-edged sword (*)	393
		UTERUS, endometriosis (cc)	56

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A 40 year old married physician. Presbyterian. Graduate University of Vienna. Board Certified in Roentgenology. Desires to service small hospitals. Available in 60 days.

LW-341

A 30 year old married physician. Protestant. Graduate Tulane University. Desires assistant, associate or clinical practice in Ob-Gyn in middle or west Tennessee community of 50,000. Available June, 1960.

LW-345

A 38 year old married physician. Methodist. Graduate Vanderbilt University. Desires assistant, associate or clinical practice in Ob-Gyn in east or middle Tennessee community of 30,000-150,000. Available February, 1960.

LW-346

A 29 year old married physician. Methodist. Graduate Medical College of Virginia. Desires private practice in Pathology in east or middle Tennessee community. Will consider assistant or associate practice. Available July, 1960.

LW-350

A 30 year old married physician. Presbyterian. Graduate Medical College of Alabama. Desires assistant, associate or clinical practice in Ob-Gyn in Tennessee community of 25,000 or more. Available July, 1960.

LW-351

A 42 year old married physician. Graduate Syracuse University. Desires private practice or associate practice in Dermatology in Tennessee community of 35,000. Available January, 1960.

LW-352

A 26 year old married physician. Methodist. Graduate University of Tennessee. Desires general practice in middle or west Tennessee community of 2,000. Prefers assistant, associate or clinical practice. Will consider industrial or institutional practice. Available April, 1960.

LW-355

A 27 year old married physician. Presbyterian. Graduate University of Maryland. Desires general practice in east Tennessee community of 5,000 to 15,000. Prefers clinical practice. Available July, 1960.

LW-353

### Physicians Wanted

A middle Tennessee town has fund of \$25,000 to build clinic for general practitioner. Population 1,000, trade area 8,000. Located 72 miles from Nashville and about 32 miles from three hospitals. Adjacent to one of state's finest recreational areas. Excellent high school and elementary school.

PW-123

Middle Tennessee community of 1700 desires general practitioner aged 25-40 interested in rural practice. No other physician in community. Office space available on rental basis.

PW-125

Clinic in east Tennessee community of 4,000 has opening for general practitioner interested in Obstetrics. Hospital located in community. Office space and some equipment provided.

PW-128

Northwest Tennessee community of 1200, trade area 3,000. Desires general practitioner. Nearest hospital 16 miles. Office space available. Near large recreational area.

PW-129

Physician in middle Tennessee town of 200,000 desires an associate general practitioner. Office space and equipment available.

PW-130

Southern Tennessee community of 1,000 desires general practitioner to replace physician who has left community to join hospital group in another community. Nearest hospital 15 miles. Office space available. Good location.

PW-131

Physician in northeast Tennessee community of 5,000 desires general practitioner to associate with him in his practice in northeast Tennessee and southern Kentucky. Hospital located in community. Office space and some equipment available.

PW-132

Small central Tennessee community of 1,000 desires general practitioner. No other physician located in community. Fully equipped six room clinic available. Two hospitals totaling 75-beds located 14 miles away.

PW-133

Physician in east Tennessee community of 6,000 desires an associate general practitioner. Age 25-35 with one year internship. New private office, examining rooms and equipment available. Hospital located in community.

PW-134

West Tennessee town of 500,000 in need of an eye, ear, nose and throat specialist. Office and equipment already set up in choice location in downtown office building. For sale on reasonable terms because of death.

PW-135









